From the Publishers

THE

SANATIVE INFLUENCE

OF

CLIMATE.

BY

SIR JAMES CLARK, BART., M.D., F.R.S.,

PHYSICIAN IN ORDINARY TO THE QUEEN, AND TO THE PRINCE ALBERT.

FROM THE LAST LONDON EDITION.

Philadelphia:
ED. BARRINGTON & GEO. D. HASWELL.
1843.

ADVERTISEMENT

TO

THE THIRD EDITION.

For the present edition, this work has been almost entirely re-written, and whatever appeared not directly to the purpose has been omitted, in order to make room for the consideration of several new subjects, and the introduction of notices of some places not previously described.

In an appendix, a brief account has been given of the climates of our colonies in the southern hemisphere; and, in another short appendix, a few remarks have been made on the application of some of the most efficient mineral waters of the Continent to the alleviation and cure of the principal diseases treated of in this volume. The meteorological tables have received several important additions and amendments.

Since the publication of the last edition, I have continued to receive from numerous medical friends, and others, who had resided some time abroad for their health, the most satisfactory assurances of the accuracy of my descriptions of the different climates, and their influence on disease. My own additional experience has been in perfect accordance with this testimony. Madeira is almost the only place respecting which statements do not quite agree; but after carefully weighing all the information which I have received, I have not found sufficient reason to change my opinion of the climate of that island.

For the valuable new matter which enriches this edition of my work, I am under obligations to various friends, to whom particular acknowledgments are made at the proper places. To the kindness of my friend Dr. Davy, I am indebted for the advantage of perusing his interesting

work, still in manuscript, on the military stations in the Mediterranean. The work unfortunately reached me at too late a period to allow me to avail myself of the information contained in it; but I had the satisfaction to find that Dr. Davy's views regarding the Mediterranean climate are in perfect accordance with my own. Respecting the infrequency of pulmonary diseases among our troops stationed in the Ionian Islands, compared with the other Mediterranean stations, Dr. Davy's experience agrees with the conclusions drawn in the Statistical Reports on the Health of the Army. To Major Tulloch, who has so ably drawn up these reports, I take this occasion to express my obligations for his readiness at all times in supplying me with information on the climates of our different colonies, and the health of our troops stationed there. To my friend, Dr. Martin, of Undercliff, I am also greatly indebted for his assistance in revising and extending the meteorological tables.

J. C.

London, May 1*st*, 1841.

PREFACE

TO

THE FIRST EDITION.

It is nearly nine years since I published a small volume of "Notes" on the Climate and Medical Institutions of France and Italy. This met with a very favourable reception; more, I believe, from the want of such a work, than from any merit it possessed. Since that time I have had ample opportunities of observing the nature of the climate of the South of Europe, and its effects on disease: and during the three years which have elapsed since my return from the Continent, I have endeavoured to make myself acquainted with the milder parts of England, with the view of ascertaining their respective merits, and of comparing them with the climates of the south. The present work may, therefore, be considered as exhibiting the result of much more extended observation and experience than its predecessor.

But although I have endeavoured to take a more comprehensive and philosophical view of my subject, I wish this work still to be regarded as an Essay, which future and yet more extensive observation only can perfect. If, however, it shall be found that I have investigated the subject faithfully and closely, as far as I have gone, and if the results of my researches, and my experience, now recorded, shall prove useful to future inquirers, and serve as a guide to my medical brethren in the application of climate to the prevention and cure of disease, I trust I may be considered as having accomplished all that could be reasonably expected of me, in an inquiry of such extent and difficulty.

The following work is divided into two parts. In the first,[1] I have endeavoured to determine the general physical characters of the milder climates of England, and of the south of Europe—to point out the manner in which the climate of different places

[1] The order of the two parts has, in the present edition, been reversed.

resorted to by invalids is modified by local circumstances; and to compare these places relatively to their influence on disease.

This part is illustrated by a series of meteorological tables (which will be found in the Appendix) more comprehensive and perfect, I believe, than have before been published; and for the construction of which I am indebted to the kindness of my friend Dr. Todd.

In the *second part*, I have given some account of the principal diseases which are benefited by a mild climate. This I found to be unavoidable; it being impossible, otherwise, to give precise directions for the application of particular climates to the cure of particular diseases—and much more so to their varieties and complications.

In my endeavours to distinguish the characters of some of these diseases in relation to the effects of climate upon them, it may appear that I have been unnecessarily minute; but I have made such distinctions only as my experience warranted; and I have made them, because I feel satisfied that without strict attention to distinctions of this kind, climate can never be successfully applied as a remedial agent.

In treating of two diseases (or rather classes of diseases) I have gone more into detail than the nature of my work may, at first sight, appear to require; but the great importance of these affections, their extreme frequency in this country, and the close relation in which they stand to climate, considered as a remedy, appeared to me to claim for them all the consideration which I have bestowed upon them.

The diseases to which I allude are consumption, and disorders of the digestive organs. Under this last title, I comprehend the various affections designated by the terms "indigestion," "bilious complaints," &c. In the article on consumption, I have endeavoured to show that the disordered states of the stomach are intimately connected with the origin of diseases of the chest, and with tuberculous affections generally. On this account alone disorders of the digestive organs would claim particular notice in a work of this kind; but on their own account they are no less entitled to attention, seeing the amount of suffering and of evil which they produce, and the great benefit which I have shown may be derived from change of air and of climate in the treatment of them.

With respect to the subject of consumption, it will probably be considered the most legitimate of any, in a work treating of the effects of climate. On this occasion, I have directed my inquiries

chiefly to the causes and origin of this fatal disease, with the view of establishing rules for its prevention; being well satisfied that it is only by a knowledge of the causes which lead to it, and by directing our efforts to counteract them, that we shall be able to diminish the ravages of consumption. On this most important inquiry, therefore, I have entered as fully as the nature of my work would admit, and have endeavoured, to the best of my abilities, to fill up the blank which has been left in the natural history of consumption—that, namely, between a state of health, and of established and sensible disease of the lungs.

I feel convinced that by adopting such a system of management, from early infancy, as I have laid down in the following pages, a great improvement might be effected in the general health of many among the higher and middle classes of society in this country. The children of delicate, and even of diseased parents, might, by proper care, be reared so as to overcome, in a large proportion of cases, their hereditary disposition to disease. The ultimate effect of this, in diminishing the vast and increasing extent of hereditary diseases, need not be pointed out.

Instructions respecting the necessary preparation of invalids for a change of climate—for their guidance during the journey, and during their residence abroad, will be found as minutely laid down as the nature of the subject would admit. During my residence on the Continent, I found these matters greatly neglected. They are, however, of the very first consequence to invalids, as without attention to them, the best climate will be productive of little benefit.

It was originally my intention to have added a third part, giving some account of the principal mineral waters of the Continent; but I found, on arranging my materials on this subject, that I could not have condensed them sufficiently for this purpose, without greatly diminishing their value. I have therefore resolved to lay them before the public in a separate volume; and have satisfied myself, on the present occasion, with merely indicating the mineral waters most suitable to the different diseases treated of. This class of remedies will be found to co-operate powerfully with a mild climate in the removal of many chronic disorders.

This is the proper place to notice the kind and liberal assistance which I have received from many friends, while engaged in collecting materials for this work. To Drs. Heineken and Renton of Madeira, Dr. Skirving of Nice, Dr. Peebles of Rome, and Dr. Playfair of Florence, I am indebted for much valuable information.

By the assistance chiefly of the two first named gentlemen, I have been enabled to give more precise information respecting the climate of Madeira, and its influence on disease, than has, I believe, been previously laid before the public. From Dr. Forbes of Chichester, Dr. Lempriere of Newport, and Dr. Down of Southampton, I have received much information respecting several of the English climates. But the gentleman to whom I am indebted above all others, is my esteemed friend, Dr. Todd of Brighton, who has, with one or two exceptions, resided for some time at all the places on the Continent noticed in the following pages, and who has unreservedly communicated to me the result of his observations and extensive experience; so that there is scarcely an article in the work which has not been improved by his suggestions.[1] I also avail myself of the present occasion, with much pleasure, to acknowledge the information which I liberally received from my continental brethren. To my valued friends, Professor De Matthæis of Rome, Dr. Lanza of Naples, Dr. Mojon of Genoa, and Professor Grotanelli of Sienna, I am more particularly indebted in this way. Indeed, the friendly and liberal intercourse which I enjoyed, while on the Continent, with my professional brethren, is one of the circumstances connected with my residence abroad, the retrospect of which affords me the greatest satisfaction. I can assure such of the profession of this country as may visit the Continent, that they will very generally experience there the greatest facility in prosecuting their professional researches; and, I take leave to add, that, if they carry with them minds free from prejudice, and a sufficient degree of practical knowledge to enable them to profit by what they observe, they will not fail to improve themselves.

I hope it will be found that I have succeeded in throwing some light on the obscure subject of the influence of climate on human health, and on the application of it to the treatment of disease. I would also hope, from the minute manner in which I have described the characters of the different climates frequented by inva-

[1] By Dr. Todd's death, which occurred last August, (1840,) the author of this work has lost a much valued friend, and medical science one of its most ardent cultivators. Dr. Todd had long been engaged in a series of researches on some of the most important points of Physiology and Pathology; and the collection of microscopical preparations which he has left, shows what Dr. Todd might have accomplished, had his life been spared a few years longer. The collection has been purchased by the College of Surgeons, to add to the Hunterian Museum.

lids, and the care with which I have indicated the nature of the diseases benefited by them, that I have gone far to correct many of the erroneous opinions which have hitherto existed on these subjects. However this may be, I do at least anticipate this good effect from my labours—that, for the future, those patients only will be sent abroad whose cases afford a reasonable prospect of benefit from such a measure; and, that the practice of hurrying out of their own country a class of invalids, whose sufferings can only be thereby increased, and their lives shortened, will no longer be sanctioned, but that such persons may be allowed, henceforth, to die in peace in the bosom of their own families.

As I anticipated that the following work would be perused by many persons not of the profession, but who are yet deeply interested in the subject of climate, in relation to its effects on disease, I have endeavoured to express myself in as plain language as possible; and I trust I have succeeded in making myself intelligible to the generality of readers, without at all diminishing the utility of my book to the members of my own profession. It has been my wish to lay before the public such a work as might serve at once as a manual to the physician, in selecting a proper climate for his patient, and a guide to the latter while no longer under the direction of his medical adviser. It is only those who have resided abroad, and have mixed much with that numerous class of our countrymen who travel for health, that can know how very much such a publication is wanted; and I may perhaps be permitted to add, at the same time, that it is only those who have attempted to compose such a work that can be aware of the difficulties of the task.

London, May 22, 1829.

THE

INFLUENCE OF CLIMATE,

&c. &c.

INTRODUCTION.

The influence of climate over disease has been long established as a matter of fact, and physicians have, from a very early period, considered change of climate and change of air as remedial agents of great efficacy. This opinion is supported both by reason and experience :—it is reasonable, for example, to believe, that a change of residence from a crowded city to the open country, or from a cold exposed part of the country to a warmer and more sheltered situation—from a confined, humid valley, to a dry elevated district, or the reverse, would produce very sensible effects on the living body ; and we find by daily experience that such is the case. The marked improvement of the general health, effected by the transition from the city to the country, even for a short period, is matter of daily remark; and the suspension, or even cure, of various diseases by a removal from one part of the country to another, is an occurrence that must have come within the observation of every one. It may suffice to mention here, in reference to this fact, intermittent fevers, asthma, catarrhal affections, hooping cough, dyspepsia, and various nervous disorders. These diseases are often benefited, and not unfrequently cured, by simple change of situation, after having long resisted medical treatment; or they are found to yield, under the influence of such a change, to remedies which previously made little or no impression upon them.

If such marked effects result from a change of so limited a nature as has just been noticed, it might be expected that a complete change of climate, together with the circumstances necessarily connected with it, should produce still more important results in the improvement of the general health, and in the alleviation and cure of disease. In this expectation we are also borne out by experience.

Unfortunately, however, for the character of climate as a remedy, it has too often been resorted to, either as a last resource, or it has been misapplied in cases wherein it would otherwise have been

capable of yielding essential service. Patients, who really might have derived much benefit from change of climate, have too often been sent abroad without proper directions regarding the situation most suited to their complaints, and altogether uninstructed respecting various circumstances, a due attention to which is necessary to give full effect to the best selected climate.

Under such circumstances, it need not excite surprise that success has not more generally attended the practice of sending invalids abroad; nor even, that the result should have been such as to bring the remedy into discredit. The fault, however, is to be sought for, not in the remedy, but in the manner in which it has been applied. My own experience has been sufficient to satisfy me, that, for the prevention and cure of a numerous class of chronic diseases, we possess in change of climate, and even in the more limited measure of change of air in the same climate, one of our most efficient remedial agents; and one, too, for which, in many cases, we have no adequate substitute.

On the Continent, the beneficial effects of change of air are duly estimated; and the inhabitants of this country, and more especially of this metropolis, are now becoming fully sensible of its value. The vast increase in the size of our watering places, of late years, and the deserted state of a great part of London during several months, are sufficient proofs, not to mention others, of the increasing conviction that, for the preservation of health, it is necessary to change, from time to time, the relaxing, I may say deteriorating air of a large city, for the more pure and invigorating air of the country. This, indeed, is the best, if not the only cure, for that destructive malady, which may be justly termed *cachexia londinensis*, which preys upon the vitals, and stamps its hues upon the countenance of almost every permanent resident in this great city. When the extent of benefit which may be derived from occasional change of air both to the physical and moral constitution, is duly estimated, no person whose circumstances permit will neglect to avail himself of it.

But to be beneficial, the remedy, simple as it appears, must be employed with judgment and discrimination. In that numerous class of persons, indeed, who are merely suffering from a residence in the city, without any decided disease, the mere change to the country may be all that is requisite to restore their health; it is therefore of less consequence to what part they go. But the case is very different with the invalid whose sufferings are chiefly referable to some particular disease. To him, the selection of his temporary residence is not a matter of indifference. For one individual of this kind, an elevated situation and a dry bracing air, will be most proper; a sheltered residence, with a milder air, will be suitable to another; while the sea-side may be the situation indicated for a third. In like manner it is with the more important measure of change of climate. The valetudinarian whose health is deteriorated by severe study or too close application to business,

and to whom relaxation of mind is as requisite as change of climate, may generally be permitted to choose the situation most agreeable to himself. But the great difference which exists in the physical characters of the climate of the places frequented by invalids in the South of Europe, and even in the southern parts—whether interior or sea-coast—of our own island, renders the selection of a winter residence a matter of vital importance to the invalid suffering under formal disease.

This is a subject which has been but little attended to; and the neglect of it has, I believe, arisen in a great measure, from the opinion which has generally prevailed in this country, that the beneficial effects of climate are evinced chiefly in consumptive diseases. Such an opinion could have originated only in a very limited acquaintance with the influence of climate on disease; and is, indeed, so far from being a correct view of the matter, that, were the character of this remedy to be estimated by its effects on consumption, it would be justly valued at a very low rate. In dyspepsia, and disorders of the digestive organs generally, and in the nervous affections and distressing mental feelings which so often accompany these; in asthma, in bronchial diseases, in scrofula, and in rheumatism, the beneficial effects of climate are far more strongly evinced than they are in consumption. In cases also of general delicacy of constitution and derangement of the system in childhood and in youth, which cannot be strictly classed under any of these diseases; and in that disordered state of the general health which so often occurs at a certain period of more advanced life, *climacteric disease*, in which the powers of the constitution, both mental and bodily, fail, and the system lapses into a state of premature decay, change of climate becomes a valuable remedial agent.

The undue confidence in the powers of climate as a remedy in consumption, which has so long prevailed in this country, is now in danger of giving place to the opposite and equally erroneous extreme of total distrust. This is, chiefly, in consequence of the statistical reports on the health of our troops in almost all quarters of the globe, showing that there is no immunity from this disease in any climate.[1]

It is to be remarked, however, that, when an invalid is sent abroad for his health, he goes, by the direction of his physician, to the climate best suited to his particular case, and at the most favour-

[1] These reports, which have been so admirably drawn up by Mr. Marshall, Deputy Inspector-General of Hospitals, Major Tulloch, and Dr. Balfour, are invaluable, and do infinite credit to the judgment and discrimination of Lord Howick, late Secretary at War, who first duly appreciated their importance to medical science, and to Sir James M'Grigor, who, with the able assistance of Dr. Theodore Gordon, planned the annual reports and topographical statements on which the Statistical Reports are founded. These annual reports, which are highly creditable to the medical officers of the army, were first projected by Sir James M'Grigor, on his being placed at the head of the medical department in 1815, and have been kept up on an uniform plan since 1816.

able season of the year. Moreover, he goes prepared to avail himself of all the advantages of his new situation, and to avoid, as far as possible, its disadvantages. Hence, the influence of any climate upon such an invalid, must be estimated very differently from the influence of the same climate on the permanent inhabitants, or on our troops who are resident in it at all seasons, and are exposed to all its prejudicial influences for years, as well as to many other causes calculated to injure health.

The great lesson which the Army Medical Reports teach, in regard to consumption, is this: that, as it is a prevalent and fatal disease in all climates, and among all nations, our attention should be chiefly directed, not to a state of disease which is incurable by climate or any other means, but to the prevention and cure of the disordered state of health, which constitutes the real cause of consumption. It cannot be too strongly impressed upon the public, that until pulmonary consumption is viewed as a secondary disease, originating in a morbid state of the whole system, we shall make little progress in diminishing the rate of mortality from it, or improving the public health.

I have thought it right to make these remarks to show that I have not overlooked the result of the observations of the army medical officers. They contain much valuable matter on the geography of disease, and on the causes of sickness and mortality among our troops in different climates; and there can be no doubt they will lead to the adoption of measures for preserving and improving the health of the army. But as regards the influence of change of climate in the prevention and even cure of disease, the information contained in these reports does not diminish our hopes of benefit from a temporary change of climate, or even from a more permanent residence, when the climate suited to the individual case is selected, and all other necessary precautions adopted. When change of climate is judiciously employed as a remedy for the constitutional disorder which precedes consumption, there will no longer remain any doubts of its beneficial influence; and what a single change of climate does not effect, a succession of such changes will often be found to accomplish.

Traveling.—The mere act of traveling over a considerable extent of country is itself a remedy of great value, and, when judiciously conducted, will materially assist the beneficial action of climate. A journey may indeed be regarded as a continuous change of climate, as well as of scene; and constitutes a remedy of unequaled power in some of those morbid states of the system in which the mind suffers as well as the body. In chronic irritation and passive congestion of the mucous surfaces of the pulmonary and digestive organs, especially when complicated with a morbidly sensitive state of the nervous system, traveling will often effect more than any other remedy with which we are acquainted.

But neither traveling nor climate, nor their combined influence, will produce much permanent benefit, unless directed with due

regard to the nature of the case, and aided by proper regimen. And here I would comment upon the error of expecting too much from the mere change of climate:—The air, or climate, is often regarded by patients as possessing some specific quality, by virtue of which it directly cures the disease. This erroneous view of the matter not unfrequently proves the bane of the invalid, by leading him, in the fulness of his confidence in climate, to neglect other circumstances, an attention to which may be more essential to his recovery than that in which all his hopes are centred.

A residence in a mild climate will, no doubt, often do much. Among other advantages, for example, it will enable the invalid to be much in the open air during a part of the year when, were he in this country, he would be either confined to the house, or exposed to an atmosphere more likely to increase than mitigate his complaints. The exercise enjoyed in a temperate atmosphere, while it improves the general health, relieves the affected organs, by promoting and maintaining a more free and equable circulation in the surface and extremities; and the constitution thus improved, may be enabled to overcome a disease under which it might have sunk in less favourable circumstances. The new scenes and the objects of interest, with which the South of Europe, more especially Italy, abounds, exert a direct and beneficial influence also on the mental constitution; and this influence will, in many cases, be greatly assisted, in an indirect manner, by the necessary abstraction of the invalid from many causes of care and anxiety—in other words, from many sources of disease, to which he would have been exposed at home.

These are some of the more obvious advantages which the invalid may expect to derive from a residence in a foreign climate; and they are assuredly great: but if he would reap the full measure of good which his new position places within his reach, he must trust more to himself and to his own conduct, than to the simple influence of any climate, however genial: he must adhere strictly to such a mode of living as his case requires; he must avail himself of all the advantages which the climate possesses, and eschew those disadvantages from which no climate or situation is exempt; moreover, he must exercise both resolution and patience in prosecuting all this to a successful issue.

In the body of the work, I shall have many opportunities of pointing out how the various circumstances, connected with change of climate, operate in the renovation of constitutions broken down by the long continuance of chronic diseases. At present I wish rather to impress the mind of the invalid with the danger of trusting too much to climate. Here, as in every other department of the healing art, we must be guided by experience; and must rest satisfied with the amount of power which the remedy concedes to us. The charlatan may boast of a specific for many or for all diseases; the man of science knows that there exists scarcely a single remedy for any disease which can warrant such a boast; and that

it is only by acting on, and through the numerous and complicated functions of the living body, in various ways and by various means, and by carefully adapting our agents to the circumstances of each individual case, that we can check or remove the disorders of the animal system, more especially those which have long existed. Let it not then be imagined that change of climate, however powerful as a remedy, can be considered as at all peculiar in its mode of action, or as justifying, on the part either of the physician or patient, the neglect of those precautions which are requisite to ensure the proper action of other remedies. Had I not considered climate a remedial agent of great value, and deserving the utmost attention of medical men, the present work would not have been undertaken; but I should feel that I were at once compromising the dignity and honour of my profession, and acting in direct opposition to the dictates of experience, if I admitted for a moment, that it is one possessing specific powers, or which may be indiscriminately employed, without regard to the general and fundamental principles of medical science.

The importance which I attach to these considerations, and the conviction that they are not sufficiently attended to in the application of climate as a remedial agent, has induced me to reverse the order of my subject in the present edition, and to notice the diseases benefited by change of climate, before describing the different climates themselves.

PART THE FIRST.

ON DISEASES.

DISORDERS OF THE DIGESTIVE ORGANS.

The prevalence of disorders of the digestive organs and the great influence which they exercise over the other diseases treated of in this volume, claim for them the first consideration. On the present occasion, however, I do not think it necessary to enter so fully into the subject as in the former editions of this work, seeing that it has been more attended to of late years. I shall therefore limit myself to the description of those features of dyspeptic disorder by which the selection of the climate adapted to each of its forms requires to be regulated.

For my present purpose the morbid states of the digestive organs may be classed under three heads:—Inflammatory, or *gastritic dyspepsia;* Irritable, or *nervous dyspepsia;* and *atonic dyspepsia*, or that form of the complaint which depends chiefly on a loss of tone.

Although there are symptoms common to these different forms of dyspepsia, there are others peculiar to each, and by which they are characterised.

In the *gastritic*, or inflammatory species, the tongue is redder than natural, especially towards the apex, where it is beset with small elevated points of a still brighter colour. It is also, for the most part, furred towards the base. In the morning on first awaking, it is dry, more particularly in cases where the irritation extends to the duodenum and liver. The gums are red, swollen, and spongy, and bleed easily; the mucous membrane of the throat is red, often dry and shining, and aphthous ulcers are apt to form on the tongue and inner surface of the mouth. The appetite is good, often craving. There is a disposition to thirst; and pressure over the stomach generally gives uneasiness. The urine is high coloured or turbid; the skin dry and sometimes affected with eruptions, and the extremities, although occasionally cold, are often hot and dry, especially in the night; whilst perspirations are not unfrequent towards morning.

The eyes are injected, and the eyelids red and swollen. The pulse is contracted and quickened, more especially after meals, and

towards night, except in languid constitutions, in which it remains slow. There is frequently a disposition to sleep during the day, and at night the sleep is uncertain; the early part of the night being often passed in watchfulness, whilst in the morning there is a heavy slumber, followed on awaking by oppression and weariness, in place of the refreshment which succeeds to natural rest. Headach is not an uncommon symptom; the pain is generally seated in the forehead, and the sensation is that of tightness and oppression rather than acute pain. It is most common in the evening and during digestion; and that more certainly after an exciting meal. The patient is apt to be irritable, querulous, and despondent; and there is little inclination to mental exertion, or power in concentrating the mind on any subject. The influence of an irritated state of the digestive organs over the mental as well as bodily powers, I may remark in passing, is far greater than is generally believed. In childhood, the irritability of temper with which it is accompanied is very remarkable; when the disorder is protracted, it is also a frequent cause of dulness in children, rendering them incapable of mental application. At a later period of life, the disposition is often so thoroughly changed, the mind rendered so incapable of exertion, and the memory so much impaired by long continued irritation of the digestive organs, that the sufferer becomes unable to apply himself steadily to any thing, and is incapacitated for his usual avocations, or even the ordinary intercourse of social life.

Atonic dyspepsia.—In atonic dyspepsia the symptoms indicate a loss of tone in the digestive organs. There is little or no appetite, often a loathing of food, and even sometimes nausea. After eating there is a sense of distention or of oppression in the stomach, accompanied by a feeling of general uneasiness or listlessness, and a disposition to chilliness; some time after the meal there are eructations, heartburn, and other symptoms of laborious digestion. The tongue is pale and flaccid, not much furred, and seldom or never dry. There is not much thirst except during digestion. The urine is pale and abundant, and the bowels constipated. The pulse is weaker and sometimes slower than natural. The surface and extremities easily become cold; the countenance is pale and the expression dull and heavy; there are inaptitude and inability for bodily exertion, and a corresponding langnor of mind.

These symptoms vary in intensity at different times. In bright dry weather, or under circumstances of pleasurable mental emotion, the appetite is better and the digestion is performed without the usual feeling of distress. On the other hand, in damp, cloudy weather, or under feelings of mental depression, all the symptoms are greatly aggravated and others superadded. Epigastric pain, great distention, fetid eructations, vomiting, headach, vertigo, faintness, cold clammy perspirations and cramps are liable to supervene, if much food, or food of an indigestible quality, has been eaten. In such a state of stomach, faintness, amounting to syncope, may

occur after a heavy or indigestible meal, more especially after long fasting.

This form of dyspepsia occurs most frequently in languid leucophlegmatic temperaments, and in cold humid weather and situations.

Nervous dyspepsia.—In nervous or irritable dyspepsia, the tongue deviates less from the natural state; it is pale, and often covered with a thin white fur; in some cases it is swollen, and exhibits the impressions of the teeth along its margins, especially in the morning; it is rarely dry, and there is little thirst. The appetite is unsteady, sometimes craving, and at other times quite wanting, especially for breakfast. Flatulency is a prominent symptom. The urine is pale and often very copious; the bowels, though constipated in some cases, are more frequently in an opposite state, and this is especially the case when the nervous system is peculiarly sensitive.

The sleep is uncertain, easily interrupted, and often unrefreshing. The pulse is small and quick, but less steady in its character than in gastritic or in atonic dyspepsia. The skin is cool, and often damp and clammy. Headach is a prominent and often very distressing symptom in this form of dyspepsia. The morning is the most frequent period of its attack, being felt on awaking; and at all times it is more liable to occur when the stomach is empty than during the process of digestion: hence long fasting proves a frequent exciting cause; over fatigue, articles of food which irritate rather than excite the stomach, such as sweet subacid substances, pastry, dry fruits, and imperfectly masticated food; strong mental impressions, and the air of crowded rooms, are also frequent exciting causes. The headach, when occurring during the day, is sometimes sudden, but in the severer attacks is generally preceded by a sense of coldness and creeping on the surface, which may amount to shivering. In some cases the attack is preceded by numbness in the extremities, by dimness of sight, or ocular spectra; in others, a peculiar uneasy sensation, originating in one of the extremities, ascends gradually to the head, resembling the aura epileptica. Nausea or vomiting occasionally occurs at this stage, and the pulse is mostly slower than natural. In the commencement, there is a sensation of uneasiness rather than of actual pain; but as the feeling of coldness diminishes, the true headach becomes developed. The pain is then intense and throbbing, affecting one side in general more than the other; and in the cases in which it has been of the most agonising kind has been confined to a small spot over one eyebrow or temple. The upper and back part of the head is often the seat of pain, and the latter place is particularly apt to be so, when the headach is partly dependent on uterine irritation or congestion. The pain, wherever seated, is greatly aggravated by mental excitement or bodily exertion. This class of headachs is common, in delicate nervous persons, particularly females, when its immediate dependence on dyspepsia is often

overlooked, but very generally the connection is discovered upon minute inquiry into the circumstances of the case.

The temper is apt to be fretful, and the mind anxious and desponding, particularly regarding the health.

Independently of the particular symptoms belonging to each form of dyspepsia, there are circumstances in their general character which distinguish them. The symptoms which accompany gastritic dyspepsia, are more fixed and permanent; they may be present in a greater or less degree, according to circumstances, but they are scarcely ever absent. In nervous dyspepsia, on the contrary, the symptoms vary in a remarkable manner. The patient feels, at times, almost entirely free from them, and the functions of the digestive organs are performed with scarcely any indication of derangement; at other times all the symptoms are greatly augmented, the patient being unable to assign any cause for their disappearance, in the one case, or their increase in the other. Atonic dyspepsia resembles more in its characters the nervous dyspepsia with which it is often complicated. Both forms are greatly influenced by mental emotions, changes of the weather, and other causes which particularly affect the nervous system. The symptoms which characterise the gastritic form of the disease, are increased by stimulants of every kind taken into the stomach, whereas the same means often afford temporary relief in the other two forms.

In mixed cases, these distinguishing characters may be observed more or less as the one or other form of dyspepsia prevails. When the gastritic and nervous dyspepsia exist together we have both inflammatory excitement and extreme morbid sensibility—the one or other state predominating at different times. This form of the disease occurs chiefly in persons of a nervous temperament, to whom the causes of gastritic dyspepsia have been applied. In like manner, nervous is often associated with atonic dyspepsia;—a morbidly sensitive state of the stomach with loss of tone, a condition the converse of inflammation. Yet, in all these mixed cases, the distinctive characters of the prevailing affection may generally be recognised.

But in protracted cases the disorder is seldom confined to the stomach; it is gradually propagated to other portions of the digestive tube, and the secreting organs in connection with it; more especially to the duodenum and liver. In many cases, indeed, the disease is chiefly seated in the duodenum, constituting what has been denominated *duodenal dyspepsia*, a very important form of dyspeptic complaint, to which I shall have occasion to recur, when noticing the diseases of children, under the head of *strumous* or *scrofulous dyspepsia*, or that form which is most frequently observed in children of a scrofulous constitution.

We also find that the morbid state of the digestive organs, in place of being propagated along the mucous surfaces, extends its influence to other systems. Thus we find it giving rise to various

affections of the skin, of the joints, and of the nervous system. Among the last may be mentioned, in addition to headachs, convulsive affections, tic douloureux, paralysis, amaurosis, deafness, loss of smell, loss of voice, spasmodic cough, asthma, palpitation, &c.

The nature of the secondary affection depends, often, upon peculiarities of constitution; but frequently, also, upon accidental causes, exciting or disposing to particular diseases during the existence of dyspepsia. The new disease being engrafted on the old, becomes as it were dependent on it, and the former cannot be cured till the latter is removed. The secondary disease being established, the primary affection is often mitigated, at least for a time. Indeed, so remarkably is this the case, that the primary disease is frequently overlooked, both by the patient and his medical attendant, amid the more prominent symptoms of the secondary affection. This I found frequently the case in patients sent abroad labouring under chronic bronchial and tracheal irritation, symptomatic of gastritic and duodenal dyspepsia.

Among the remedial measures for these various morbid conditions of the digestive organs, and the sympathetic diseases which originate in them, change of climate is one of the most efficient. Even when the patient cannot avail himself of a more complete change of climate, he may still derive much benefit from a temporary residence in some of the milder situations in our own island.

In recommending such a change, however, to the dyspeptic invalid, the peculiar disorder of the stomach must be attended to. The different forms of the disease, noticed above, require different climates. The patient with gastritic dyspepsia should not, for example, go to Nice, nor the southeast of France. In cases of this kind, the southwest of France or Devonshire are preferable, and Rome and Pisa are the best places in Italy. On the other hand, in atonic dyspepsia, in which languor and sluggishness of the system, as well as of the digestive organs, prevail, with lowness of spirits and hypochondriasis, Nice is to be preferred to all the other places mentioned; and Naples will generally agree better than Rome or Pisa; while the southwest of France and Devonshire, and all similar climates, would be injurious. In the nervous form of dyspepsia a climate of a medium character is the best, and the choice should be regulated according as there is a disposition to the gastritic or the atonic form.

In the more complicated and protracted cases, still more discrimination is required in selecting the best climate and residence; as we must take into consideration not merely the character of the primary disorder, and the state of mind with which it is associated, but the nature of the secondary affection which may already exist, or to which the patient may be predisposed.

To insure the full advantages to be derived from the best selected climate, urgent symptoms should be removed or alleviated before the patient commences his journey; and he should, moreover, have the nature of his disorder, and the principles upon which

he should regulate himself while traveling, and during his residence abroad, fully explained to him. Indeed, the want of attention to these things is one of the chief reasons why so many dyspeptic invalids derive little permanent advantage from their summer tour, or even from a more prolonged residence abroad. In order to secure success from change of air or climate, it is necessary that the patient should understand the conditions on which the promise of advantage is made, and how they are to be best and most perfectly fulfilled. Above all, it should be impressed on his mind, that he is not to expect too much from climate; that he must sedulously avoid the causes which brought on the disease, and adhere with steadiness to such a general regimen as is necessary for its removal. Aided by this moral and medical discipline, a winter spent in a favourable climate cannot fail to prove highly beneficial to the dyspeptic invalid; and a well directed course of mineral waters, the following summer, will, in many cases, be of the greatest service in restoring the impeded functions of the abdominal viscera and of the skin. After this, the patient may enjoy a degree of bodily health, and of mental energy, to which he has long been a stranger; and may continue to reap the fruits of his perseverance and self-denial, so long as he shall avoid the exciting causes of the disease.

The extent to which change of air or climate requires to be carried, for the removal of stomach complaints, will depend on the circumstances of the case. In many instances a few months, even a few weeks, judiciously employed, will do much for the restoration of the health; in others, a much longer period will be required. In treating, therefore, of the influence of change of climate and change of air in dyspeptic disorders, it will be both convenient and useful to divide them into two classes—the more recent and simple, and the more protracted and complicated cases.

Of the more recent and simple cases of Dyspepsia.—Under this class of dyspeptic patients is comprehended that numerous body of our citizens, and the inhabitants of large towns generally, whose health, and digestive organs in particular, have suffered by a sedentary life, close application to business, errors in regimen, &c. during the winter, and who require change of air during the summer.

The plans generally adopted with this view, are a visit to some of our watering places, or a tour through the mountainous parts of our own island, or on the Continent,—and more particularly in Switzerland. The preference which one or the other of these measures may deserve, will depend upon the nature of the case, the convenience of the patient, and various other circumstances, which can be appreciated only by the patient himself, and his physician.

We shall suppose that a tour is the measure adopted. Having had the more urgent symptoms of his complaint removed or alleviated, before he sets out,[1] the next object of importance with the

[1] See Introductory Remarks to PART SECOND.

dyspeptic traveller is diet. This must be regulated according to the state of the digestive organs, regard being had to the exciting effects of traveling, which render more especial attention to the diet necessary during a journey. If much gastric irritation exists, and, more espicially, if this is accompanied with any disposition to fever, the diet should be very mild and moderate in quantity. A small proportion of animal food, once a-day, is all that should be allowed in such cases. Tea or arrow-root, or sago, forms the best evening meal. The best general drink is toast-water; wine, and all kinds of fermented liquors and spirits, should be avoided by the greater number of dyspeptic patients during a journey.

I am aware that in traveling on the Continent, it is not always an easy matter to obtain that kind of food which is suitable to irritable or delicate stomachs; but a little management on the part of the traveller will generally suffice to obviate this difficulty. The soups of the Continent, if not so strong, are generally more wholesome, and agree better with irritable stomachs than the rich exciting soups used in this country. The opinions commonly entertained respecting soup in dyspeptic affections, are not applicable to every form of dyspepsia, nor to all soups.

Fruit should generally be abstained from, as it will seldom be found to agree in any form of stomach complaint. An exception is to be made in favour of good ripe grapes, which are often useful in gastritic dyspepsia. Ripe grapes, eaten in considerable quantity for several weeks together, is a remedy (*cure de raisins*,) employed on the Continent in several complaints. In the inflammatory form of dyspepsia, more especially when there exists a similar state of the mucous membrane of the intestines, with a disposition to diarrhœa; also in chronic cases of this disease, and in hemorrhoidal affections, ripe grapes are considered of great use.

If the dyspeptic invalid will observe the effects which the different articles of food produce, and be true to himself and candid in his observations, he will soon discover that the more moderately he lives the better he will feel. When he has passed a restless night, or has a dry or loaded tongue, or bitter taste in the morning, he may be assured, that the regimen of the preceding day was not suited to him, that he has erred either in the quantity or quality of his food, and should regulate himself accordingly for the future.

The next circumstance requiring the particular attention of the dyspeptic traveller, is the state of the bowels. Constipation is an evil from which travellers generally, and more especially dyspeptics, suffer; and it is of great consequence that this state should be obviated. The mild diet which has been recommended will be a means of favouring the action of the bowels, and of moderating the injurious effects of their inaction when this occurs. For the removal of constipation, the milder laxatives are much safer, and more effectual than drastic purgatives. The latter, even when given in the smallest doses, irritate the stomach and bowels, and, in this way, are often productive of more mischief than the state they are in-

tended to obviate, which state their frequent repetition tends, moreover, to confirm. Castor oil, or confection of senna, or manna, taken in such doses only as are sufficient to obviate constipation, are the best medicines. They may be taken at bed-time, so as to act the following morning. When the stomach cannot bear these medicines, a mild aperient pill may be occasionally given. But what often answers much better than any aperient medicine, is the use of mild *lavements*. To persons who have very sensitive bowels, and who suffer from constipation, this proves an invaluable remedy, more especially during a journey; and no one should travel without being provided with the means of relieving the bowels in this way. The relief obtained by the judicious use of this remedy, will not only add greatly to the comfort of the patient, but favour the return of the bowels to a more healthy and regular performance of their functions; while it will obviate the necessity of having frequent recourse to purgative medicines, a fruitful source of mischief, as I have already remarked, to dyspeptic invalids. The lavements should consist of water, barley-water, oatmeal-water, or thin gruel, tepid, or, what answers better in many cases, an infusion of chamomile flowers. Cold water proves very beneficial in some cases; but soap and more irritating substances are generally objectionable. The quantity injected need not be great; half a pint, or even less, will often bring on an action of the bowels more readily than a larger quantity.

Tepid bathing is a remedy that should never be neglected by the dyspeptic invalid while traveling. Independently of its utility as a means of cleanliness and comfort, it promotes the cutaneous exhalation, tends to equalise the circulation, and cools and soothes the whole system.

If the dyspeptic invalid will attend to these simple directions, he may derive much and lasting benefit from his tour. He should keep in mind that he has an important object in view; that health is only to be regained by such a mode of traveling as is compatible with his strength, and by strict adherence to such a regimen as comports with the deranged state of his digestive organs.

These observations, which are intended chiefly for travellers on the Continent, are equally applicable to those who confine themselves to excursions in our own island, or passing some time at the sea-side, or inland watering-places, during the summer. Those who visit the sea-coast will find the tepid sea-bath a most valuable remedy. With a few dyspeptics cold sea-bathing may agree, but does not suit the majority of cases. The cold or tepid shower-bath is better, and will be found more generally beneficial. The warm or tepid bath is useful in almost every case. The vapour bath will prove serviceable in certain cases, more especially where the skin has been long in a dry state; but its indiscriminate use for the removal of this symptom, is calculated to do mischief. It should be impressed on the patient's mind, that it is in vain to expect that any kind of bath, or any remedy, will restore the natural secretion of

the skin, while the irritation of the digestive organs is kept up by improper diet. The dry skin is consequent upon irritation of some internal organ; and until this be removed the natural state of the surface cannot be restored. Without attention to this, the vapour bath will be of little use, and may prove injurious.

The great and common errors in dyspeptic cases are, as I have already said, the condition in which invalids are sent abroad, and the manner in which they live while there. Much greater and more permanent benefit would be derived from a change of air, were its effects aided by such remedial measures and such a regimen as the nature of the case requires. As these matters are generally managed, the invalid has frequently not returned many weeks, when he finds himself in the same state nearly as when he left his home. The reason of this is sufficiently obvious. Previously to the tour, nothing effectual is done for the mitigation of the disorder of the digestive organs, and no system of regimen is adopted, by which the beneficial effects of change of air and traveling may be favoured and rendered more permanent. All is trusted to air, relaxation from business, and amusement; and when the influence of these is withdrawn, the dyspeptic and nervous invalid lapses rapidly into his former state.

Of the more protracted and complicated cases of Dyspepsia.—Persons whose digestive organs have been long deranged, and whose constitutions have suffered in consequence, will require, in order to obtain much or lasting benefit, a more prolonged residence in a mild climate. The impressions produced by causes operating for a series of years on the digestive organs, and, through them, on other important organs, and on the system generally, are not to be effaced by a residence of a few months in the best climate, even when assisted by the most judicious regimen, and the most exemplary conduct on the part of the patient.

Generally speaking, such invalids will derive benefit by changing our damp, chilly climate, for a drier and milder one, during the winter. But it is not a matter of indifference in what place they fix their abode; and, indeed, it was chiefly the consideration of this circumstance which induced me to go somewhat into detail, in endeavouring to describe the distinguishing characters of the different affections of the digestive organs.

I have pointed out three forms of dyspeptic disorders:—one, in which there is an inflammatory state of the mucous surfaces of the digestive canal; another, in which an opposite condition prevails—a state of atony; and a third, in which a morbidly sensitive state of these organs is the principal feature, and which is also, for the most part accompanied with a languid condition of the digestive function. These are important distinctions, and must never be lost sight of in prescribing for dyspeptic patients, whether it be regimen or climate.

It is true that these morbid states pass into each other in every variety of shade, from the pure inflammatory dyspepsia on the one hand to the pure atonic dyspepsia on the other; and the successful

management of each case will much depend upon the degree of discrimination exercised in referring it to its proper place in the scale. This applies as much to change of climate, as to any other remedy.

The selection of a residence even in the same place is not a matter of indifference to very sensitive invalids. One will feel himself better in an elevated situation, another in a lower and more sheltered one. The high and low and more confined situations of Rome and of Naples, afforded me many opportunities of observing the different effects of locality on such persons, and satisfied me of the necessity of attending to this circumstance, in selecting a residence for them. But dyspeptic patients, who pass the winter in Italy, need not in general be limited to one place. Although the climate most suited to the particular character of their complaint should be selected as their head-quarters, they may visit, during the season, the principal cities in the south of Italy; and if this is done with judgment, the successive changes may prove beneficial to their health. Generally speaking, Rome will be the best residence in Italy in gastritic dyspepsia, especially during the spring; Nice the best climate in the purer cases of atonic dyspepsia.

To all these patients the spring proves the period of the greatest excitement; and they who are disposed to the more acute kind of stomach affections, must be particularly on their guard against whatever excites the digestive organs at this season. The same degree of stimulus that is tolerated in the winter, will prove injurious to them in the spring. In irritation of the mucous membranes, whether of the digestive or pulmonary organs, I had every year occasion to remark the increase of excitement that occurred during the spring months in Italy. At this season there are great and often rapid alternations of temperature, which are extremely exciting to sensitive invalids. A powerful sun, frequently accompanied with a sharp wind during the day, alternates with cold nights. This may be said to be the character of the spring every where; even within the tropics it prevails in some degree; but in the south of Europe it is particularly so, and this circumstance renders the climate injurious in the more acute degrees of gastritic dyspepsia.

It is not, however, as I have already observed, for the acute forms of dyspepsia that I recommend a change of climate—but for affections of some standing, in which the more acute stage has passed over, and with it the highly excitable state of the digestive organs. For these, and for the essentially chronic cases of dyspepsia, a residence for some time in the south of Europe, under the limitations already pointed out with respect to season, residence, regimen, &c., will be of the greatest service. For the hypochondriac, more especially, whose mind is likely to feel an interest in the variety of scenes, and the objects of art which present themselves so abundantly in Italy, I know not any measure more likely to prove beneficial. I class the hypochondriacal with the dyspeptic patients; because, without venturing to affirm that hypochondriasis

is always a consequence of dyspepsia, I think it may be safely asserted that the former is very rarely met with unaccompanied by more or less of the latter; and, in a large proportion of cases, both acknowledge the same origin, and are cured by the same means.

Though patients of a hypochondriacal turn of mind should not be encouraged to dwell on their complaints, and attend to every trifling sensation, I consider it essentially wrong to send them abroad with the assurance that their complaints are purely imaginary,—that nothing is required but change of air, of scene, and amusement, to dispel their gloomy thoughts and restore their health. That there may be cases in which the physician can do little more for his patient than commit him thus to the wide world, I am not prepared to deny; but I believe they are rare; at least I did not meet with any such during a residence of many years on the Continent, where my intercourse with patients of this class was pretty extensive. On the contrary, a single case did not fall under my observation, in which careful examination could not detect a deranged state in the functions, if not in the structure of some internal organ; and in which judicious medical treatment would not have promoted the beneficial influence of climate. When we are better acquainted with the morbid conditions of the digestive organs, and with the extensive influence which they exert on the mind, we shall have less frequent occasion to confess our ignorance of the patient's complaints, by attributing them to nervousness, to low spirits, or other imaginary states designated by the like unmeaning expressions.

With regard to the general management of these cases while the patient is traveling,—the same directions are applicable as to the more recent cases of dyspepsia, which have just been detailed.

As on the journey, so during their residence abroad, the diet is the most important circumstance requiring the attention of dyspeptic invalids. Seeing that the stomach is the organ primarily and principally affected, it requires no argument to prove that, unless the diet be such as is suited to its morbid condition, climate, or any other means, will do little good. It is impossible, however, in this place, to do more than point out in a general way the kind of diet which I found most generally suited to this class of patients. I have already remarked, and it is a circumstance deserving the particular attention of invalids, that, in removing to a warmer climate, the sensibility of the system is increased, and that consequently stimulants of every description more easily excite. Hence, the diet which may be proper in England, will not agree in Italy, nor in the south of France. This remark is especially applicable to persons suffering from stomach complaints. There is, no doubt, a difference in dyspeptic patients, as well as others, in this respect; but I invariably found a mild and very moderate diet the most suitable for them; and for this plain reason,—that whatever may be the nature of the disorder of the stomach, debility, or, in other

words, a diminution in the powers of the organ for the performance of its functions, is an almost constant accompaniment of the disease.

Wine, when it is permitted, should always be taken in great moderation; and it will be found that the lighter kinds, if not acid, generally agree the best. Of wines imported into Italy, those of Bourdeaux are to be preferred. The spirituous wines of Spain, Portugal, and Sicily, if used, should be largely diluted. Seltzer water will often prove a good substitute for wine.

It would be a wise rule for all dyspeptic patients to abstain entirely from every thing that is brought to table in the form of dessert. This advice I feel cannot be urged too strongly; nor can the dyspeptic patient have too forcibly impressed upon his mind that temperance and abstemiousness are the best physic. The belief so generally entertained that medicine can counteract the effects of habitual errors in regimen, should be regarded as mere sophistry. There is but one road to a permanent cure in these cases, and he who shall steadily pursue it long enough to feel its advantages, in the restoration of mental and bodily energy, will not easily be induced to deviate from it again.

Exercise in the open air is one of the greatest advantages which a winter residence in the South affords; and the dyspeptic invalid should take full advantage of it. Walking and riding on horseback are the best kinds of exercise, but neither should be carried so far as to produce over-fatigue. When the irritation of the stomach is complicated with that of the bronchial membrane, riding should be chiefly relied on for exercise. Exercising the arms every morning is very useful in dyspeptic complaints; for this purpose the clubs so much used in India are much to be preferred to dumb-bells. While on the subject of exercise, I must not omit to mention that on the water, which to many invalids is very soothing and beneficial.

Friction of the whole surface of the body, night and morning, is a valuable remedy, and is especially suited to the sedentary, as being the best substitute for exercise. For those whose occupation compels them to a sedentary life, in our damp and cold climate, there are few remedies more useful, though none more neglected, than friction. The diligent use of this, and sponging the surface with cold or tepid vinegar and water, or the shower-bath daily, during summer, and the use of the warm bath at all seasons, regulated according to the constitution of the patient, form a powerful combination of means for maintaining the health of such persons as are constrained by circumstances to forego the natural modes of bodily exercise in the open air; and the same measures are often singularly efficacious in restoring the diminished energy of the skin and digestive organs in cases of nervous and atonic dyspepsia. They should not, however, be considered as superseding exercise in the open air when at all practicable. For the want of exercise, nothing can fully compensate; but the means which I have sug-

gested will in some degree supply its place, and will always prove beneficial to the class of invalids for whom I am now writing.[1]

Cold and damp weather is particularly injurious in dyspepsia, more especially in the nervous and atonic forms, in which coldness of the surface and extremities, is a prominent symptom. The use of warm clothing, therefore, forms an essential part of the treatment in such cases. Flannel should be worn next the skin during the day; and when any change of dress is made in the summer, it should be effected gradually and with great caution; and the change of weather in autumn should always be anticipated by a return to warmer clothing. These precautions are equally necessary in a southern climate.

All these measures tend directly to maintain a free circulation through the extremities and surface,—an object of the greatest importance in the treatment of dyspepsia. Indeed, I conceive that it is chiefly in consequence of the active circulation on the surface during the warmth of summer, and being more in the pure open air, that so many feeble, dyspeptic, and nervous invalids find themselves better and get stouter during that season, and that the hypochondriac's mind is freed of half the gloom which oppressed it; whilst, on the contrary, it is from the diminished activity of the circulation in the surface and extremities, and the consequent congestion of the internal organs, and also from breathing so constantly the comparatively impure air of a room, that such patients languish during nine months of the year in this country. On this principle, much of the advantage derived from passing the winter in a mild climate may be explained.

If the measures which I have just recommended be steadily adopted, little medicine will be required. It will at all times be necessary to attend to the state of the bowels; though the dyspeptic invalid should endeavour to bring them to act regularly by proper regimen and exercise rather than by medicine. That this may generally be done, even in very obstinate cases of constipation, I am satisfied from experience; and in young persons regularity of bowels may often be induced, in a much shorter period than could be believed. In this respect a change of climate often acts very beneficially.

I once more beg that it may be clearly understood that I do not recommend traveling, or a residence in the south of Europe, to patients labouring under the more acute forms of gastritic dyspepsia; much less do I advise such a measure to those labouring under organic disease or chronic inflammation of any of the abdominal viscera. When organic changes have taken place, or inflammation is established in any organ of importance to life, a long

[1] For the most judicious instructions on this subject, the reader is referred to Dr. Combe's work on the *Principles of Physiology applied to the Preservation of Health, and to the Improvement of Physical and Mental Education*, Eighth Edition;—a book which no family should be without.

journey is more likely to increase than diminish the evil. Whenever inflammation exists in a degree sufficient to excite the circulation, in whatever organ or structure it may be situated, I consider rest an essential part of the treatment, although it is much neglected in chronic diseases.

The nature of a disease should be well ascertained before the patient is urged to take active exercise, or is permitted to undertake a long journey. If the disease be of a purely nervous character, active exercise in the open air forms a most effectual means of restoring the health; whereas, if the symptoms depend on chronic inflammation, the same measure will scarcely fail to increase it, and, as I have frequently had occasion to observe, may even convert a chronic into an acute disease. The distinction is, therefore, very important, but it is one which I have reason to know is not generally attended to.

After a winter passed in a mild climate, a judicious course of mineral waters will prove a very efficient remedy in cases of dyspeptic disease, dependent upon, or complicated with a congested state of the liver and other abdominal organs, and a disordered state of all the secretions. For my views on this subject, I must refer to the Appendix on MINERAL WATERS.

PULMONARY CONSUMPTION.

There is no subject connected with health, possessing greater claims to attention than that which relates to the class of diseases of which Pulmonary Consumption is one of the most frequent and fatal forms; at the same time, there is perhaps none concerning which the public is less accurately informed.

In the former editions of this work, I entered pretty fully into the causes, nature, and progress of Pulmonary Consumption; but having lately published a separate Treatise on the subject, I shall confine myself, on the present occasion, to a brief description of the constitutional disorder, TUBERCULOUS CACHEXY, which precedes consumption, and to a notice of the more evident indications by which a tuberculous state of the lungs may be recognised.

TUBERCULOUS CACHEXY was employed, in the first edition of this work, to designate that morbid state of health which precedes, and in fact, constitutes the essential predisposing cause of pulmonary consumption. The term has been generally adopted by the profession, but the disorder itself has not yet received that degree of consideration which its importance demands. The attention is still too exclusively directed to the pulmonary disease, and too little notice taken of the constitutional affection; although it is only on the proper treatment of the latter that we can rest our hopes of success,—all efforts to cure the former having been as yet comparatively of little avail. It is of the utmost consequence, therefore,

that we should be able to distinguish the leading features by which the constitutional, or curable period of the disorder may be recognised.

The aspect and general appearance of a young person labouring under tuberculous cachexy, are generally well marked. The countenance is pale, with a sallow cast, although it is in this respect subject to considerable variations. In persons naturally of a florid complexion the changes are often very remarkable: at one time general paleness, with a faded expression of countenance; at another, an irregular mixture of white and red prevails; but in place of the gradations by which these colours pass into each other in health, they terminate abruptly, giving the face a blotched or spotted appearance. Sallow complexions assume a peculiarly dull, leaden hue; there is paleness or lividity of the lips; the eyes have generally a dull, pearly aspect; and the whole countenance commonly appears sunk and languid. These indications, as I have already said, are very variable, and may pass for many months unnoticed, except by the immediate relations or the physician; but as the constitutional disorder increases they become evident to the most cursory observer.

Upon close examination, the skin of such a patient will be found in an unhealthy condition: either harsh and dry, or moist, clammy, and relaxed. Its colour, too, is often changed to a sallow, and, in some cases, to a dirty yellowish hue; and, except on the cheeks, there is always a deficiency of red vessels. In some hereditary cases, particularly in females of a fair and delicate complexion, the skin has a semi-transparent appearance, resembling wax-work, and the veins may be seen distinctly through it. The temperature, also, of the surface and extremities is below the standard of health.

The digestive organs are very generally deranged, though the degree and nature of the derangement differ materially in different cases. The tongue is more or less furred; the point and margin are redder than natural, and often studded with enlarged fungiform papillæ of a still brighter hue. In a class of cases, of much rarer occurrence, the tongue is clean and natural in its appearance, and the mucous membrane of the internal fauces pale. I have remarked this chiefly in females, in whom the disease has been owing to hereditary predisposition, and little complicated with gastric disorder. But in by far the greater proportion of cases, the functions of the digestive organs are more or less deranged.

The nervous system also partakes of the general disorder. There is more nervous sensibility than is natural to the patient. The sleep is not sound; being disturbed or unnaturally heavy, and rarely refreshing. In the purer and less complicated cases of hereditary consumption, there is generally great serenity of mind; the spirits are of surprising buoyancy; and the hope of recovery remains to the last. But this state of mind is a less constant attendant on consumption than is generally believed; especially when it has been preceded by long continued disorder of the digestive

organs. In such cases there is oftentimes great impatience, and irritability of temper.

The state of the circulation is subject to great variety. In hereditary cases, the power of the heart is commonly under the ordinary standard, whilst the frequency of the pulse is generally above it, and palpitation is a frequent symptom. The circulation is in general feebly carried on through the extreme vessels, as is shown by the condition of the skin already noticed, and the tendency to coldness of the extremities. This state of the surface and extremities is a very constant attendant on abdominal congestion, complicated with an irritated condition of the gastro-intestinal mucous surfaces; and hence it is generally more evident, according as the disorder of the digestive organs is more considerable.

Although, in the great majority of cases, the indications of disease just enumerated are sufficiently apparent during a considerable period before the occurrence of pulmonary disease, cases do occasionally occur, and the subjects are chiefly delicate young females, where tuberculous disease is indicated by such faint signs, and steals on so imperceptibly, that the patient may be on the brink of the grave, before the friends are aware of the existence of danger; but this is rare, and will be still more so, when the symptoms which indicate the approach of this insidious disease are more generally known and attended to.

Tuberculous cachexy is sometimes complicated with chlorosis, and in such cases the latter is often considered the primary disease, the error not being discovered till those means so successfully, in general, employed to combat it, are found to produce a very temporary benefit only.[1]

The disordered state of health which I have just described may manifest itself in the child at birth, or it may be induced at any period of life by the exciting causes to be presently noticed; although the operation of these is more rapid before the body has acquired its full maturity, than at a later period of life.

Hereditary Origin.—A patient labouring under tuberculous cachexy, entails on his offspring a constitutional predisposition to consumption. But it is a grievous, although a very common error, to suppose that this predisposition is derived from consumptive and scrofulous parents only. The offspring of persons labouring under a deranged state of health, it matters not from what cause, are very generally predisposed to tuberculous diseases. When this truth is generally recognised and acted on, a greatly improved state of the public health will be the consequence.

From whatever causes the hereditary predisposition may have originated, the earlier in life the means of correcting it are adopted the more successful will they be. Our efforts to improve the health should commence with the birth of the infant, and be continued

[1] In Dr. Ashwell's Practical Treatise on the Diseases Peculiar to Women, will be found some judicious remarks on this state of disease.

till it has reached maturity. But the errors committed in the nursery, and too often continued during childhood and youth, rather tend to confirm and augment the hereditary delicacy; and such will be the case till parents are taught to entertain more correct views respecting the means of promoting the health of their offspring.[1]

Exciting Causes.—Whatever deteriorates the health may lead to tuberculous cachexy; residence in a low, damp, and chilly atmosphere; long confinement to close, ill ventilated rooms, whether nurseries, school-rooms, or manufactories; deficient exercise in the open air; improper food, either deficient in quantity or of innutritious quality; or the habitual use of an overstimulating diet. In short, imperfect digestion and assimilation may induce tuberculous cachexy; and the earlier in life these causes are applied the more rapidly in general will their effects be manifested. The offspring of the healthiest parents may thus become tuberculous in early life, if long exposed to the exciting causes enumerated.

I shall now endeavour to state, with as much precision as the nature of the subject admits, what may reasonably be expected from change of climate in tuberculous cachexy, and in consumption at the different stages of its progress, and under its different complications.

For the removal of the deranged state of the health, which has been shown to precede consumption, a change to a milder climate is a very powerful remedy, when aided by such other means as the peculiar circumstances of the case may require. Before making such a change, however, the functions more evidently deranged should, as far as possible, be restored to a healthy state.

In a large proportion of cases, the functions of the digestive organs and skin, as I have already remarked, are deranged, and, until they are improved, we shall make little progress in remedying the constitutional disorder, even under the influence of the best climate. But the means employed for effecting this should be directed with judgment and moderation. It must be recollected that we have to deal with a constitution either hereditarily weak, or which has been brought into its present condition by a long series of morbid actions, and cannot be at once forced back into a healthy state. Even when inflammation exists, we must keep in mind that it is inflammation in a disordered habit, and apply our remedies accordingly. For if the strength is now broken up, and the balance of the circulation suddenly disturbed by debilitating remedies, the system may lapse rapidly into tuberculous cachexy. On the other hand, stimulating or irritating remedies will be equally pernicious. In the cases now under consideration, local congestion

[1] Dr. Combe's recent work on the Physiological and Moral Management of Infancy, will effect a vast improvement in nursery management, and in the health of children. It is the most valuable work on the subject of health which has ever been published, and no parent capable of reading his own language should be without it.

and irritation often exist with general debility; and it requires more judgment to manage this pathological state, than almost any other with which I am acquainted. The principal object, in such cases, is to promote a more free and regular distribution of the circulating fluids through the parts in which they have been deficient, and to relieve those parts or organs which have been overloaded. This will be best done by a mild, nutritious diet, suited to the state of the digestive organs; by exercise in the open air, especially on horseback, proportioned to the strength of the patient; by the use of the warm bath; by cold sponging, and friction of the surface, especially on the chest and extremities. In short, the whole system being deranged, we must not content ourselves by directing attention to one or two disordered functions; but, by operating on all, endeavour to raise the standard of health generally.

The removal of gastric or bronchial irritation, when it exists, and the regulation of the bowels, are the circumstances which chiefly require the employment of medicines. The proper application of these in each individual case, must depend on the judgment of the medical attendant.

The deranged functions having been corrected, and the general health improved as much as the circumstances of the case admit, the patient may change his climate with well grounded prospects of permanent advantage.

Unfortunately, it too often happens, that the period of constitutional disorder, which we have just been considering, is permitted to pass; and it is not until symptoms of irritation or impeded function in the lungs, such as cough, difficult breathing, or spitting of blood, appear, that the patient or relations are alarmed, and that fears are expressed that the chest is "threatened." Such symptoms are but too sure indications that tuberculous disease has already commenced in the lungs. It may, indeed, be difficult, in some cases, to ascertain the positive existence of this, although by a careful examination of the chest, and an attentive consideration of all the circumstances of the case, we shall seldom err in our diagnosis; and it need not, at any rate, affect our practice; as a strong suspicion of the presence of tubercles should lead us to adopt the same precautions, as the certainty of their existence.

When tuberculous matter is deposited in the lungs, the circumstances of the patient are materially changed. We have the same functional disorders which existed in the former state: and we have also pulmonary disease, predisposing to a new series of morbid actions—to bronchial affections, hæmoptysis, inflammation of the pleura, and lungs, &c., which calls for important modifications in the plan of treatment. Removal to a mild climate, especially if effected by means of a sea-voyage under favourable circumstances, may still be useful, on the same principle as in the former case—namely, as a means of improving the general health, of preventing inflammatory affections of the lungs, and even perhaps arresting the progress of the disease.

When consumption is fully established—that is, when there is extensive tuberculous disease in the lungs, little benefit is to be expected from change of climate; and a long journey will almost certainly increase the sufferings of the patient, and hurry on the fatal termination. Under such circumstances, therefore, the patient will act more judiciously by contenting himself with the most favourable residence which his own country affords, or even by remaining amid the comforts of home, and the watchful care of friends. And this will be the more advisable when a disposition to sympathetic fever, to inflammation of the lungs, or to hæmoptysis, has been strongly manifested.

It is natural for relations to cling to that which seems to afford even a ray of hope; but did they know the discomforts, the fatigue, the exposure, and irritation, necessarily attendant on a long journey in the advanced period of consumption, they would shrink from such a measure. The medical adviser, also, when he reflects upon the accidents to which such a patient is liable, should surely hesitate ere he condemns him to the additional evil of expatriation; and his motives for hesitation will be increased when he considers how often the unfortunate patient sinks under the disease, before the place of destination is reached; or, at best, arrives there in a worse condition than when he left his own country, and doomed shortly to add another name to the long and melancholy list of his countrymen who have sought, with pain and suffering, a distant country, only to find in it a grave. When the patient is a female, the objections to a journey apply with increased force. In these advanced cases the patient's sufferings may often be alleviated, and life prolonged, by confinement to apartments kept at a regulated temperature.

There are, however, cases of chronic consumption, in which the disease of the lungs, even though arrived at a very advanced stage, may derive benefit from a mild climate. The tuberculous affection in such persons is generally limited to a small portion of the lungs, and the system sympathises little with it. In instances of this kind, a residence for some time in a mild climate, especially when aided by proper regimen, may be the means of prolonging life. Likewise, in those fortunate but unhappily rare cases, in which the disease in the lungs has ceased to extend, and a long period must elapse before the work of reparation is completed, a mild climate will be of considerable service by improving the general health, and preserving the patient from the operation of many causes, likely to renew irritation in the lungs, and to which he would necessarily be exposed in this country.

In such cases, life may be preserved for many years by a constant residence in a mild climate, and by sedulously avoiding, at the same time, whatever is calculated to produce congestion, or excite inflammatory disease in the lungs. During my residence abroad, I met with several invalids labouring under this chronic

form of disease, who passed their winters in Italy with infinitely more comfort and enjoyment of life than in England.

Choice of Climate.—When change of climate is decided on, the next subject which naturally presents itself for consideration, regards the selection of that which is most suitable to the case. The question has been often put to me—which is the best climate? The truth is, no one climate or situation is the best in all cases. In a subsequent part of this work will be found the characters of the different climates usually resorted to by invalids, and a comparative estimate of their merits. With regard to the climates of the south of France and of Italy, I may here observe, that for consumptive invalids, in whom there exists much sensibility to harsh and keen winds, and, more especially, if immediate vicinity to the sea-coast is known to disagree, Rome or Pisa is the best situation for a winter residence. When, on the contrary, the patient labours under a languid, feeble circulation, with a relaxed habit, and a disposition to congestion or to hemorrhage, rather than to inflammation, and, more especially, when the sea-air is known by experience to agree, Nice deserves the preference. In cases complicated with gastritic dyspepsia, however, Nice is an improper residence: its climate being decidedly inimical to such a state. The climate of Hyères may be considered as nearly similar to that of Nice. The influence of such a morbid condition of stomach, in modifying all other diseases, is sufficient to claim for it the chief consideration in deciding upon the particular climate; although, I fear, it is but seldom thought of. Judging, however, from experience, I should say, that where this state of the stomach exists, a climate which is unsuited to it will do the patient little good, whatever may be the ostensible disease for which he is sent abroad.

With those cases of chronic consumption, therefore, to which I have alluded, and which, according to my observation, are almost invariably complicated with, and, I believe, in a large proportion of cases, chiefly induced by disorder of the digestive organs, Nice will decidedly disagree. Besides, such patients have generally an irritated state of the bronchial membrane, a dry skin, and a morbid degree of sensibility of the nervous system—in all of which states that place is unfavourable. Rome or Pisa will agree better with this class of invalids.

But the climate which, of all others, I consider the best suited to consumptive patients generally, is that of Madeira. It will be seen by a reference to the meteorological tables in the Appendix, and from the comparisons drawn, in the article on Madeira, between the climate of this island and that of the different situations on the continent of Europe, respecting which we have good information, that the winter temperature is considerably higher and more equable, and the summer heat much more moderate than at any of these places. For such consumptive patients, therefore, as are likely to derive benefit from climate, I consider that of Madeira altogether

the best. And this opinion does not rest merely on a consideration of the physical qualities of the climate, but is warranted by the experience of its effects. Madeira has also this advantage over all the places in the south of Europe—that the patient may reside there during the whole year, and thus avoid the inconveniences, and even risks, attending a long journey, to which consumptive invalids, who pass the winter in Italy, are exposed. The summer climate of the whole shores and islands of the Mediterranean, is unsuited to consumptive invalids; and, indeed, is known by experience to be so pernicious to them, that sailors and soldiers attacked with the disease in the Mediterranean fleet, and garrisons of Malta, &c., are sent to England on the approach of summer.

The two places which, from the character of their climate, approach most nearly to Madeira, are Teneriffe and the Azores. During the winter, the temperature of Santa Cruz, on the southern coast of Teneriffe, is several degrees higher than at Funchal; and, in this respect, would prove a superior winter climate for some pulmonary invalids.

The climate of Bermudas is changeable, and holds out no advantage to the consumptive invalid. That of the Azores, on the contrary, is remarkably mild and equable, and suitable to cases in which a soft and rather humid atmosphere is indicated.

But various circumstances require to be taken into consideration before we decide upon a particular climate in any individual case. The age and constitution of the patient, the peculiarities and complications of the disease; his ability to bear traveling, or a sea-voyage; the means at his command, and the friends by whom he can be attended, are circumstances which should be taken into account, in weighing the comparative advantages of different places, and the inconveniences attending all of them, when compared with the comforts and resources of home. These collateral circumstances may render it proper to recommend change of climate to one patient, when another, to whose case such a measure is equally applicable, will be better advised to remain in his own country.

The winter climates in England most favourable to consumptive patients are those of Torquay, Undercliff, Penzance, Clifton and Hastings. The choice among these places will depend upon the nature of the case, and especially upon the condition of the digestive organs. For persons of an inflammatory constitution, with a disposition to gastritic dyspepsia, Torquay will form the best residence, while it will as decidedly disagree with persons of a very relaxed habit, and subject to copious secretions from the mucous membranes, or to atonic dyspepsia. Such patients will bear the climate of Torquay for a very short time only. What has been said of Torquay, applies with equal force to Penzance, and the other parts of the Land's End. Undercliff, Hastings, and Clifton, will form preferable residences in the constitutions referred to.

In some cases, the relation of the disease to the climate is so

nicely balanced, that it may be advantageous to send the patient for a few months in the early part of winter to one place, and the remaining part of the season to another. Torquay, for example, may suit remarkably well for two or three months, at the end of which time it may be advantageous for the patient to change to a less relaxing climate. The winter at Torquay, or Penzance, and the spring at Clifton will suit some patients much better than continuing the whole season at any one of these places. For the particular character of their climates, and effects on disease, I must refer to the second part of this work.

During the summer, great advantage will be derived from frequent change of place in almost all cases, as will be pointed out in the article on *summer residences*.

There is one circumstance connected with the residence of consumptive patients, concerning which the profession are not quite agreed—I mean the preference given to a sea-side, or an inland situation. We have indeed, no very satisfactory comparisons on this subject, in which the nature of the climate, occupations, habits of life, &c., of the inhabitants have been fairly and fully taken into account, so as to enable us to judge how far the frequency of consumption, in any particular place, may be connected with the nature of the climate, and how much may depend on the mode of living, &c. The question is certainly a very difficult one, and involves a great variety of circumstances not easily analysed; hence it is, that we have little more than opinions, formed from imperfect data on the subject. From all that I have been enabled to learn and observe, consumption is, I think, *cæteris paribus*, more frequent on the sea-coast than in the interior;[1] still the greater mildness of many maritime places, as of those on the south and south-west coasts of England, may more than compensate for this difference, especially when these places are resorted to for a part of the year only.

In Italy, Rome is the only place, frequented by invalids, sufficiently remote from the sea to be considered as having an inland climate; and here the comparison is certainly in favour of the inland situation. But my impression is, that there is less difference between the sea-side and inland situations, in that range of latitude, than further north; perhaps owing to the greater dryness of the sea-side in southern climates. Of two climates, the physical characters of which were alike, the one on the sea-shore, and the other inland, I should prefer the latter as a residence for a consumptive patient, more especially if the disease were in an advanced stage; but I am ready to admit that this opinion is unsupported by any very accurate or numerous data. In America the opinions of medical men are greatly in favour of the interior.

[1] The comparisons in this respect, which have been made between the sea-coast and interior, of large continents, I do not consider applicable to small islands.

The idea that the air of a marshy country is beneficial in consumption, is now, I believe, entirely abandoned. Scrofula, and even consumption, is more frequent in many aguish districts, than in others of a different character; and an attack of ague is much more likely to favour the occurrence of consumption than to prevent it.

A sea-voyage is another measure, regarding which a difference of opinion prevails among professional men. My own opinion is, that a voyage is generally beneficial in the early stage of consumption. The sickness and vomiting are highly useful in many cases, and I believe, the unceasing motion of a ship, by the constant exercise it produces, is also very advantageous. It was to this chiefly, that the celebrated Gregory attributed the benefit derived from a voyage. Several striking instances of the beneficial effects of a sea-voyage in consumption, fell under my notice while in Italy; and Dr. Peebles, now of Edinburgh, whose long residence at Leghorn gave him a favourable opportunity of observing the effects of the voyage on consumptive patients sent from England to Pisa, met with many examples of the same kind. On examining the notes of the cases, with which Dr. Peebles favoured me, I find that hæmoptysis existed in every one of them; and this was also the case in most of the examples which came under my own observation. The circumstance of the patient being subject to hæmoptysis, in the early stage more especially, I should, therefore, consider as affording no objection to a sea voyage.[1]

In the consumptive cases, also, which are complicated with palpitation, or increased action of the heart, whether purely functional, or depending upon organic disease, I consider a voyage useful, and much preferable to a land journey. There are complications, on the other hand, which render a voyage unadvisable. When there is much nervous sensibility, a strong disposition to headach, and an irritable state of the stomach, a sea-voyage will generally disagree. With these exceptions, I should say, that a consumptive patient, in whose case a foreign climate is likely to prove useful, had better go by sea than by land, provided a vessel can be obtained with good accommodations. Much depends upon this last circumstance, and much also on the climate or season in which the voyage is made. The motives for preferring a voyage to a journey will be still stronger, when the patient has not the means of traveling in the most comfortable manner. Sailing or cruising for some time would be still preferable to a voyage; and the Atlantic is more favourable for this purpose than the Mediterranean. When a long voyage is objected to, shorter voyages, under favourable circumstances, and repeated at short intervals, might be of essential benefit. An objection to sea-voyages, is the length of time that the patient is necessarily confined to the close and relaxing air of the

[1] See Dr. Combe's Physiology, &c., already referred to, p. 107, for a remarkable example of the benefits of a sea-voyage.

sleeping places; but this is far more than compensated for by the facilities which he enjoys of being constantly on deck during the day, and there breathing the purest and most salubrious air. To take advantage of this with safety, however, let the invalid be provided with an ample store of warm clothing, and wrapped up sufficiently to be able to spend the whole time of daylight on deck without being disagreeably chilled.

The measures which have been recommended as necessary preparations for a long journey, are equally requisite in the case of a voyage—much of the benefit of which will depend upon the condition in which the patient is sent to sea, and the regimen he adopts while there.

When it is deemed proper to send a consumptive invalid abroad, his best residence will be found in one or other of the places which have been noticed: and when it can be so arranged that he may change his climate several times, it will generally be to his advantage. When change of climate is wisely adopted for the improvement of the general health, and before local disease is established, a far wider range may be permitted to the traveller. The whole south of Europe is open to him, and if he manages his voyages and travels judiciously, he may improve his health more than by remaining the whole season in any one place. But while great latitude may be allowed, over-exertion in traveling, and exposure to harsh cold weather, should be avoided, especially by the more delicate, otherwise they may lose more than they gain. The total want of proper accommodation and means of conveyance must also limit the extent of their wanderings.

In short, general rules only can be laid down for such cases. In the guidance of each individual, an outline is all that can be traced by the physician; but the use of a little common sense and discretion on the part of the traveller, will enable him to fill up the detail of his tour, so as to derive the maximum of benefit with the minimum of those disadvantages which are inseparable from all kinds of traveling.

With respect to the length of time requisite for a consumptive invalid to pass in a mild climate, in order to overcome the disposition to the disease, no general rule can be given. When the measure is had recourse to for the removal of the disordered health which precedes tuberculous cachexy, a single winter will be of great benefit, and possibly all that may be necessary. When tuberculous cachexy is established, and still more, when there is reason to suspect the presence of tubercles in the lungs, several years may be requisite, and in some cases it may be necessary to reside permanently in a mild climate.

When, by the influence of climate and other measures, pulmonary disease has been warded off, or when it has ceased to make progress, every thing calculated to excite irritation in the lungs should be carefully avoided; as a tendency to a return of the constitutional and local disorder remains long after the symptoms have

disappeared. Where the disease has advanced a step further, and a cure has nevertheless been effected during a residence in a mild climate, the patient should remain there for a considerable time (some years if possible) after every symptom of the disease has disappeared. The same plan of treatment, and the same climate which enabled the constitution to effect a cure, should be continued, if possible, till the respiratory organs and system have accommodated themselves to the new condition of the parts. This may, indeed, be such that the individual shall not be able to live in any other climate. Under whatever circumstances he may be placed, such a person must make up his mind to live with great regularity and temperance during the remainder of his life. He will bear neither full living nor much bodily fatigue; although regular and moderate exercise in the open air, and above all, riding on horseback, will be of the greatest service to him. Fulness and excitement, especially as affecting the pulmonary organs, are what he has most to dread. Although the disease has ceased to advance, the lungs cannot be restored to their former dimensions; they must remain diminished in capacity in proportion to the extent of tuberculous disease which existed. The chest can therefore neither be so fully expanded, nor the blood so freely circulated through the lungs as before. Hence, as the capacity of the respiratory organs is diminished relatively to the bulk of the body, there will be a constant tendency to a plethoric or congested state of the pulmonary system; and if the quantity and quality of the food, and degree of bodily exertion, are not adapted to the new condition of the lungs, hemorrhage or inflammation of these organs will be the consequence; and may speedily terminate a life, which, by a reasonable degree of attention and prudence, might have been prolonged many years. A mild and moderate diet, with abstinence from every thing exciting, can alone preserve such persons. The state of the digestive organs requires particular attention, as congestion in them will speedily lead to a similar state of the lungs; and when this plethoric condition of the abdominal and pulmonary circulation exists in a considerable degree, either hemorrhage from the bowels, or lungs, or apoplexy, or inflammation of some important organ, can scarcely fail to be the consequence. This, accordingly, is the manner in which such patients are often suddenly carried off. In these cases, therefore, the slightest indication of pulmonary congestion or inflammation, should be immediately attended to.

Artificial climate.—In place of sending consumptive patients to pass the winter in a foreign climate, it has been proposed to keep them at home, in rooms maintained at a regulated temperature. With the advocates of such a measure, the state of the lungs appears to be the only consideration; but, without improving the general health, by exercise in the open air, all our measures, directed to the local disease, will be of little avail—the removal of the constitutional disorder can alone afford the patient a hope of

recovery. In tuberculous cachexy, therefore, and even in incipient stages of consumption, particularly in young persons, I consider such a measure generally most inadvisable. But, in the advanced stages of consumption, when removal to a distant climate is worse than useless, life may be prolonged, in many cases, by keeping the invalids in apartments, the temperature of which is regulated, and the air maintained in a pure state. Females will, *cæteris paribus*, bear such a system of confinement better than males, from the circumstance of its being more congenial to their usual habits of life.

In cases of inflammation of the lungs occurring during the winter, in persons predisposed to consumption, keeping the patient entirely to the house, in a regulated temperature, till all symptoms of the disease have ceased, or even until the return of mild weather, will often be very judicious. But when a person so circumstanced has the means, he should pass the following winter in a climate where confinement will be unnecessary, and where he can improve his general health by exercise in the open air.

Comparing, then, the benefits to consumptive patients, likely to be derived from a mild climate, and confinement to rooms regulated to an agreeable temperature, there can be no question of the decided superiority of the former. But when circumstances preclude the possibility of changing the climate, and the patient is found quite unfit to bear exposure to the external air in this country, then confinement to apartments, properly and equably heated, is the best measure we can adopt to avoid the injurious effects of our cold, damp, and variable atmosphere, during the severe season.

Various plans have been tried for keeping up a uniform temperature, and at the same time preserving the air in a state of purity, but hitherto with very imperfect success. The common fire-place is the worst of all means, and strong objections attach to almost every other in use. The self-regulating stove, invented by Dr. Arnott, secures an equable temperature both night and day, at a minimum expenditure of fuel and trouble, The objection brought against it, in common with all other close stoves, that the apartments cannot be at the same time properly ventilated, can have arisen only from inattention on the part of the objectors to that portion of Dr. Arnott's work which treats of ventilating, and in which effectual means are described for securing this important purpose, not only in connection with the stove, but generally.

When means are adopted for insuring the escape of the impure air from the upper parts of the room, the ventilation may be made much more perfect with Dr. Arnott's stove than with a common fire.

But it is scarcely possible to maintain a steady temperature in one or two apartments, the doors of which have to be frequently opened, unless the air of the whole house is warmed on its first entrance. This may be effected by having a self-regulating stove in the lobby or entrance hall, through which the principal supply of

air passes. An additional reason for maintaining the air throughout the house at a certain degree of warmth, is, that it enables the invalid to leave his apartments without experiencing any material change of temperature in the stairs or lobbies.

In addition to any particular arrangement, for keeping up a constant ventilation, it would be of great advantage to have the windows completely thrown open for a few minutes every day, when the invalid leaves his room, in order that the air throughout the whole apartment may be completely renewed. The walls being always warm, the cold air admitted will very soon be raised to the proper temperature.

By thus securing purity as well as warmth of the air, not only in the rooms occupied by the invalid, but throughout the whole building, the injurious effects which would result to the constitution from passing the winter within doors, may be in a great measure obviated, and the utmost advantages which can accrue from it secured.

The invalid who has passed some months in an artificial climate, established within doors, should, previously to his first going out into the open air, habituate himself to changes in the degree of temperature in his apartments; and when he does venture out it should be with proper precautions.

The *respirator* will prove a valuable protection to him in the first instance, and for some time afterwards, on any sudden or considerable fall of temperature. Indeed, the habitual use of this instrument may, in some cases, be made a substitute for climate.[1] By maintaining in their houses a uniform and comfortable degree of warmth, both night and day, and by the use of the respirator out of doors, many persons who labour under chronic bronchial disease might escape the great aggravation of it, which never fails to distress them every winter. Those who dislike the appearance of the metallic respirator may contrive one for themselves, of a less formal appearance.

By keeping up the habit of going *daily* into the open air, in almost all weathers, under the protection of warm clothing, and, in certain cases, with the additional assistance of a respirator, during the prevalence of cold winds, persons with very delicate lungs may bring themselves to bear this climate, and even strengthen their constitution to an extent not generally believed. If, in addition to this daily exposure to the open air, for a longer or shorter period, according to the state of the weather, the temperature of our houses were better regulated, we should meet with much fewer examples of pulmonary and other diseases, generally attributed to the vicissitudes of our climate, but for which we are more indebted to the alternations of temperature created by ourselves, and the neglect

[1] Mr. Jeffrey has brought his respirator to a state of great neatness; and has reduced the price to the lowest rate, in order that the poor may avail themselves of it.

of those precautions and means of defence which are within our power.[1]

DISEASES OF THE LARYNX, TRACHEA, AND BRONCHI.

In no class of complaints, is the beneficial action of change of air and climate more speedily manifested, than in irritations of the organs of respiration. In the slighter bronchial affections, a change to a very short distance only, has often a remarkable effect; coughs ceasing in the course of a few days, which had resisted medical treatment for many weeks. But in protracted cases the disease assumes a more fixed character, and requires a thorough change of climate to produce much effect upon it.

Some previous treatment will generally be necessary to prepare the patient for deriving full advantage from such a change; and he should be made acquainted with the various causes likely to increase his disease while traveling. The long continuance of the disease is no reason for disregarding these precautions, as chronic inflammation may be easily excited during a journey into an acute form.

The next circumstance which requires attention in bronchial diseases, is the state of the digestive organs. Irritation of the lungs, more especially after the middle period of life, is very often a sympathetic affection, depending upon irritation of the stomach and duodenum and congestion of the liver. Accordingly, on tracing the progress of chronic bronchial diseases, we shall generally find that they were preceded for some time by a disordered state of the digestive organs. In such cases, the cure depends more upon the correction of the primary disorder, than upon the direct influence of climate on the organs of respiration. Indeed the chronic, and even the acute inflammations of the chest, are comparatively of easy management when the digestive organs are in a state of integrity—when the abdominal circulation is unembarrassed, and the various secretions connected with digestion, free and natural.[2]

When, therefore, the patient is suffering from dyspepsia, this should be remedied, as far as possible, before he leaves his own country; otherwise the change, so far from proving beneficial, may be injurious to him.

The skin will also require our particular attention, as it is seldom in a healthy condition in persons who have long laboured under bronchial irritation.

For the general management of such invalids during the journey,

[1] For some excellent advice on this subject I refer to Dr. Combe's Principles of Physiology applied to the Preservation of Health, &c., chapter vii., eighth edition.

[2] For some very judicious remarks on this subject, I beg to refer to the notes on the article *Pneumonia*, in Dr. Forbes' translation of Laennec.

I beg to refer to the article on that subject, at the commencement of the second part of this work; and to the article on "Disorders of the Digestive Organs," for directions respecting regimen; as these are strictly applicable to the class of diseases now under consideration. One remedy, however, namely, warm bathing, which is highly useful in dyspeptic complaints, requires to be employed with much caution in bronchial, and still more in tracheal and laryngeal irritations; and, unless by medical advice, it had perhaps better be omitted altogether in these cases during the journey.

Besides these important considerations, which the physician alone can regulate, there are some minor circumstances which claim the attention of the patient; and respecting which he can minister to himself. Persons labouring under irritation of the respiratory organs should be particularly careful during the journey, and, indeed, at all times and in all climates, to avoid currents of air. Although it is important that they should take daily exercise in the open air, when the weather is favourable, it is far better to remain for a few days within doors, than to expose themselves to a cold and humid atmosphere, or to cold winds.

To persons suffering from bronchial irritation, or who are very liable to that complaint, the application of cold water, or salt, or vinegar and water, to the chest and neck every morning, followed by active friction, is very useful. This practice might be generally adopted, with great advantage, at all seasons in this country, where colds and inflammatory sore throats are among the most prevalent complaints.[1]

By means of cold sponging or the shower bath, and friction, and the occasional use of the warm bath, with a steady perseverance in a mild regimen and regular exercise, particularly on horseback, a surprising change may often be effected in the health and feelings of delicate persons, and their sensibility to cold greatly diminished.

Warm clothing is particularly necessary, and flannel next the skin, during the day, I consider indispensable. When the trachea is the seat of the affection, the neck and upper part of the chest should be particularly well covered, during the winter and spring, with flannel or chamois leather. The lower extremities should be kept warm; and I wish it to be understood, that these precautions are as necessary in the south of Europe as in this country: for, although in the former the weather is altogether considerably warmer and drier, and the winter much shorter, than in England, the alternations of temperature are quite as great, while the houses are colder. The spring, too, in the south of Europe, is very irritat-

[1] "In my own experience," says Dr. Forbes, "the effect of sponging the chest with cold water and vinegar once or twice a day has proved of immense benefit to delicate subjects, and more especially to those liable to catarrhal affections, and to persons decidedly phthisical. In these cases, although no doubt the practice proves tonic to the system generally, I conceive its chief operation is in lessening the sensibility of the lungs to the impression of cold."—*Translation of Laennec*, 3d Edit. p. 98.

ing; and hence, during that season, the greatest circumspection is required, on the part of the class of invalids for whom I am now writing.

With respect to the best winter residence, I found Rome agree more decidedly with such patients than any other place on the Continent; and I repeatedly had occasion to compare its influence with that of the other climates upon the same patients. The climate of Rome is not, however, so beneficial when the disease is accompanied with copious expectoration, and a relaxed state of the system, as that of Nice; but in the dry tracheal and bronchial affections, the climate of Rome, and also that of Pisa, is preferable. Rome has several obvious advantages over the other residences on the Continent, for patients labouring under bronchial irritation. It is little liable to high winds, the air is soft, and the surrounding country well adapted for riding,—the best exercise for such patients.

But at Rome, the invalid labouring under bronchial disease will find reason for much self-denial. He must be cautious in his visits to the cold galleries and churches, and to such of the ancient ruins as are damp, or subject to currents of air, else he will run the risk of repeated relapses. During a strong northerly wind he should not stir out of doors. I have known a single ride, during the prevalence of this wind, produce a renewal of the disease in a patient who had been steadily improving for several months.

With the exception of cases in which there is a copious expectoration, and a relaxed state of the system, the climate of Madeira proves very beneficial, and is preferable to any part of the Continent. In this country, Torquay is the best climate in the dry bronchial irritations; for those with copious expectoration, a relaxed condition of the system, or an atonic state of the digestive organs, Undercliff and Clifton afford better climates. Invalids of this class may derive great benefit from a well directed tour during the summer, or rather frequent changes of air and place; for this is much more beneficial to them, more particularly if females, than a continuous journey. Traveling rapidly seldom fails to derange the system in some degree, and this will in a great measure be counteracted by short journeys, and resting at different places a week or ten days; at the same time, to be effectual, the tour should extend over a considerable extent of country, and all those precautions which have been suggested as necessary on a journey ought to be attended to.

It is scarcely necessary, after what has been said on diseases of the mucous membrane of the digestive and respiratory organs, to enter on the subject of similar diseases of the mucous surfaces of other parts. It may suffice to observe, that in chronic irritation of all these membranes, a mild climate will generally prove beneficial.

ASTHMA.

Asthma is a term applied in common language, to various diseases in which difficulty of breathing is a prominent symptom. In technical language it implies a disease in which the difficulty of breathing occurs in paroxysms. Asthma is very often sympathetic of a morbid state of some other important organ, as the heart, the digestive organs the womb, &c. Before recommending climate, or any other remedy, to an asthmatic patient, therefore, the state of these organs ought to be carefully enquired into. In almost all cases of asthma, the digestive organs are disordered. The skin is also very often dry, harsh, and not unfrequently affected with eruptions. The connection between the morbid state of the skin and this disease is rendered very evident, in some cases, by the first attack of asthma succeeding to, and apparently depending upon, the disappearance of some cutaneous complaint, which had been injudiciously removed by local applications, while the cause of it was neglected: this I have known to occur at the early age of five years.

In no disease, perhaps, is the effect of change of climate so conspicuous as in asthma. Taking the disease generally, it may be stated, that a removal to a warmer climate is highly beneficial; but the degree of relief will depend greatly upon the climate being suited to the particular case. We must not, therefore, prescribe for a name, but take into account the whole pathological condition of the patient, in order that we may be enabled to fix upon the climate best suited to his case.

The following forms of asthma require attention, in prescribing change of air or climate.

Pure Nervous Asthma.—It is difficult to say what place will agree best with this form of asthma. The general constitution of the patient, and his past experience in the particular quality of air which suits him, will assist us in deciding. This form of the disease is comparatively very rare, and I did not see a sufficient number of cases while abroad to enable me to state any thing very positive respecting the influence of particular climates on it. What very often passes for simple spasmodic asthma will be found, on closer examination, to be complicated with that diseased state of the mucous membrane of the lungs, termed *dry catarrh*, an affection which generally remains latent for a considerable time, and is very often overlooked; nevertheless it is a very frequent cause of asthma. In this form of disease, the climate of Rome will generally be found to agree well.

Humid Asthma.—This variety is asthma complicated with chronic bronchitis, and is one of the most common forms of the disease. It may be either idiopathic, or symptomatic of disordered digestive organs; in the former case, it is commonly much benefited by the climate of Nice; which is also often useful in the latter variety, although the amount of benefit will depend on the

kind and degree of the gastric affection of which the asthma is symptomatic. On this subject I need not repeat what has been already said in the articles on dyspepsia and bronchial diseases.

Cardiac Asthma.—Asthma dependent upon, or complicated with disease of the heart, may receive temporary relief from a mild climate; but the nature of the primary disease demands the chief consideration, as upon our power of abating it, must mainly depend our hopes of any permanent effect being produced on the asthma. When change of climate is adopted, in this complication, a voyage is preferable to a land journey.

In asthma complicated with chronic irritation of the bronchial membrane, or of the digestive organs, or with a congestive state of the hepatic system, or an unhealthy condition of the skin, a course of warm mineral water will prove of much benefit.

GOUT.

In the early stages of this disease, if the patient possesses sufficient resolution to adhere to a regimen calculated to remove the gouty disposition entirely, a residence for some time in a mild climate will greatly favour his endeavours.

In confirmed cases, when the joints are permanently affected, and when serious inroads have been made on the constitution, a mild climate very often improves the state of the general health, and prolongs the interval between the paroxysms.

The regimen of the gouty invalid, residing in the south of Europe, while it requires to be regulated according to the circumstances of the individual case, should also be adapted to the climate. If the disease is in an early stage, and a cure is expected, a very mild regimen is necessary; and, as a part of this, total abstinence from wine. In the chronic form of the disease, the previous habits of the patient must be taken into consideration, in regulating his regimen. A mild diet will, however, be more necessary in Italy than in England. Sweet acid wines, should be avoided; but the sound French wines, especially those of Bourdeaux, will soon be found to agree with the generality of such invalids; and, contrary to the general belief, prove less "gouty," and less injurious to the health, than the more spirituous wines of Spain, Portugal, and Sicily: abstinence from all kinds of wine is still better; and might, I believe, be often successfully adopted even in cases of gout of long standing.

Warm mineral waters, employed both internally and externally, prove very beneficial in chronic gout, and are well calculated, in many cases, to improve the general health, and restore the tone of the affected parts.[1]

[1] See Appendix on Mineral Waters.

CHRONIC RHEUMATISM.

A residence for some time in a mild climate proves of the greatest benefit in chronic rheumatism. Nice and Rome are the best climates on the Continent, according to my experience. Rheumatism is very often complicated with and kept up by a disordered state of the digestive organs, without the removal of which the affection of the joints can scarcely be cured. In cases of this nature, when gastritic irritation exists, Rome is the better climate; while, in the pure chronic rheumatism, Nice deserves the preference,—as it does also in those complicated forms of rheumatism, in which the disease exists in combination with an atonic or relaxed state of the stomach. In cachectic rheumatism, or that chronic affection of the joints dependent upon a cachectic state of the system, and when the disease is complicated with anomalous eruptions, Nice has also appeared to agree well.

When a winter passed in Italy fails to remove the rheumatism, I would recommend a course of some of the mineral waters on the Continent, known to be most beneficial in such cases.

DELICACY IN CHILDHOOD AND YOUTH.

There are two periods in early life, when a residence for some time in the south of Europe has appeared to me particularly useful.

The first is during childhood, from about the third or fourth year upwards. At this age children often become delicate and subject to catarrh on slight exposure to cold, to gastritic irritation, constipated bowels, swelling of the lymphatic glands, and other symptoms indicating a strumous disposition. In such cases a temporary residence in a warm climate proves very beneficial. During my residence in the south of Europe, I found the health of delicate English children, whether of a strumous habit or otherwise, very much improved by one or more winters in Italy. The mildness and dryness of the Italian winter, and, still more, its shortness, compared to that of this country, sufficiently explain the beneficial effects produced on the little invalids. Their delicate frames are not chilled so much, nor for so long a period of the year, as in our own climate, while they are enabled to be much more in the open air; a circumstance of the greatest importance to delicate children, and for the want of which nothing can compensate. I must here, however, restrict my praise to winter alone, as the summer in Italy has often an injurious effect upon such children, especially if the residence is prolonged beyond a single season.[1]

[1] The winter in Italy proves useful in difficult dentition, but summer is, in the same degree, pernicious. Infants in Italy should generally be suckled for a longer period than in England; and it is a rule never to wean them in the spring while teething.

Rome and Nice are, according to my observation, the best winter residences for children. The general characters of their climates, and the opportunities which the surrounding country affords for exercise, give these places a superiority over other towns resorted to by strangers in Italy. When the digestive organs are in an irritable state, Rome will be the more suitable residence. On the other hand, if there is a torpid, languid state of the constitution, Nice affords a preferable climate.

Children subject to chronic croup will derive advantage from a winter passed in Italy; for although this disease is generally connected with a disordered state of the digestive organs, it is often induced by exposure to cold and damp, in children predisposed to it. Croup is scarcely known in southern Italy; and among children who had previously had the disease, no relapses, I believe, occurred during my residence at Rome.

When there is a disposition to hydrocephalus (comparatively a rare disease, I think, in the south of Europe,) and when there is not much gastritic irritation, the same change of climate will be useful.

But by far the most important disease of childhood, and that which, when rightly understood, forms the key to the treatment of almost all diseases occurring at this period of life, is a disordered state of the digestive organs. This subject is, in my opinion, so important and so intimately connected with the design of the present work, that I deem no apology necessary for entering at some length into it.

Dyspepsia in Children.—A deranged state of the digestive organs is the source of most of the chronic, while it aggravates, and increases the danger from all the acute diseases to which childhood is liable, such as hooping-cough, measles and scarlatina. If neglected, it also leads to an unhealthy youth, and imperfect development of the body; but above all, it is the principal cause of that morbid state of the system which has been denominated tuberculous cachexy. In the hygeienic management of children, therefore, it is of the utmost importance that correct views should be entertained respecting the nature and causes of disorders of the digestive organs.

Dyspepsia may assume the same characters in childhood as in the more advanced periods of life, but by much the most frequent and destructive form of the disease is that which has been named by medical writers *Strumous Dyspepsia*, from its being intimately connected with scrofula in all its forms.[1]

The symptoms in the early stages vary much in degree in children of different constitutions. When not well marked they may

[1] Strumous Dyspepsia has been admirably described by my late lamented and talented friend Dr. Todd, in his able article on Indigestion, in the Cyclopædia of Practical Medicine. To that article I beg to refer the medical reader for a full account of dyspepsia in all its forms.

exist a considerable time without attracting much notice. The child is thirsty, feverish and restless in the early part of the night, and towards morning often becomes bathed in copious perspirations. The tongue is generally florid, and towards the point the papillæ are prominent and red. The appetite is variable; the bowels costive, and the motions generally pale; the urine is high-coloured or turbid. As the disease advances, the tongue becomes more loaded, the breath fetid, the countenance loses its natural colour and animated expression; the child looks pale and pasty, and the flesh is soft; the appetite is at times craving, and at other times there is no desire for food. If the little patient be neglected or improperly treated, the skin becomes harsh and dry, the abdomen tumid, the extremities waste, the eyelids are swollen and inflamed, and puriform discharges occur from the ears; the glands of the neck become enlarged, and cutaneous eruptions not unfrequently appear. The child is now on the verge of tuberculous cachexy, into which he soon lapses unless judiciously treated. Dr. Todd is of opinion, that this form of dyspepsia is more characteristic of the strumous or tuberculous disposition than any of the external signs which have been usually trusted to as its indications.

A change to a mild climate under such circumstances will be of the utmost advantage to the child. During summer, frequent changes of air will be productive of great benefit. In the early part of the summer, the interior,—and towards the end, and during the autumn, the sea-side will best suit such children. But no general measure of this kind should be adopted, till the morbid state of the digestive organs is in some degree corrected; and wherever a child goes, this should receive constant attention. For although the general health may be much improved by change of air, or climate, the improvement will not be permanent unless the congestion and irritation of the digestive organs, in which the disorder had its origin, and on which its continuance depends, are removed. With this view every means calculated to correct this state should be adopted. The most important is the regulation of the diet. This must of course be varied according to the age of the child, and the degree of congestion and irritation which exists. Generally speaking, the diet should be of the blandest quality, more especially in children of an excitable constitution. When the tongue is red, the skin hot at night, with thirst, milk and farinaceous food should constitute almost the sole nourishment. As the irritation abates, a little mild animal food every second day is allowable. For children of a more torpid character of constitution, who have little disposition to fever, when the tongue is loaded, and all the functions languid, a more exciting diet may be permitted. The warm bath and friction will be beneficial in all cases, more especially in the languid constitutions just alluded to. The great objects in the treatment should be, to regulate the diet, according to the sensibility and power of the digestive organs, to promote an active state of circulation in the surface and extremities, with a view to remove

the congestion and irritation of the internal organs, and to impart tone to the system. Without removing the morbid state of the duodenum, and the congestion of the liver and abdominal organs generally, it will be in vain to expect a free state of the circulation in the surface and extremities, a healthy condition of the skin, or the power of resisting cold. This irritation of the digestive organs influences every function of the body, and without its removal, all remedies directed to the improvement of the general health will produce only a partial and evanescent effect.

This is not the place to discuss the medical treatment, but I cannot resist the occasion of entering my *caveat* against the inconsiderate routine practice generally adopted in such cases. Active mercurial purgatives, an exciting diet of animal food, not unfrequently repeated several times a day, with the addition of porter or wine, or both; and this followed by steel and other tonics, constitute generally, in this country, the treatment of scrofulous children. Such a mode of treatment is at total variance with the gastro-duodenal irritation and hepatic congestion, which are present in a greater or less degree in all cases of scrofula. Besides this, complete want of success attends it in practice, whilst striking benefit is derived from an opposite plan of treatment.

When change to a distant climate cannot be accomplished, a residence in some of the milder situations in our own island will often be of great service in improving the health of delicate children. The sea-coast is considered the best residence for scrofulous children, and delicate young persons generally. This opinion, however, is not always correct; and even when sea-air is desirable, it is not a matter of indifference what situation is chosen. There is a considerable variety in the climate of the different places on the sea-coast resorted to by invalids.[1] For some cases of scrofula, a dry, bracing air, such as that of Brighton, will be the most suitable; for others, the more sheltered situations of Undercliff or Hastings; and the mild and soft climate of the south-coast of Devon will, in many cases, prove a very favourable winter residence; whilst during the summer months, a dry elevated part of the interior, such as that afforded by the Malvern Hills, will often be superior to any part of the sea-coast.

The second period of youth at which I consider a mild climate more decidedly beneficial, is about puberty. It frequently happens, at this age, that from pursuing a course of study too assiduously, especially during the debility consequent upon rapid growth, or from various other causes, the health is materially injured; the whole system is debilitated, and the changes which take place at this period of life, either do not appear, or do so imperfectly, and the development of the body is not fully accomplished. The young person loses his usual colour, plumpness, and strength; the face is pale, and the features are fallen; the skin dry and harsh, or relaxed

[1] See article on Consumption.

and moist, or the former state alternates with general or partial perspirations: cutaneous eruptions are also common; the feet are very liable to become cold; the bowels are constipated; the tongue loaded, and the digestive organs disordered. The nervous system is morbidly sensitive, and the temper irritable, or there is great mental depression, and the whole moral character is often remarkably changed: there is an indifference to the objects and pursuits which previously interested the mind, and a disinclination for either bodily or mental exertion. Tuberculous disease often shows itself under such circumstances, for the first time.

One of the most powerful means of preventing such disorders when threatened, and of removing them when they have occurred, is a temporary residence in a warm climate: and when the person is known to have a hereditary predisposition to consumption, the measure is more urgently called for; as the deranged condition of the system, if not soon corrected, may terminate in the constitutional disorder which we have seen to be the precursor and essential cause of consumption. If change of climate cannot be accomplished, the winter should be passed in some of the milder parts of our own island, where by exercise in the open air, warm sea-bathing, and a well regulated diet, much may be done to rescue the youthful invalid from the impending danger.

Although I have particularly noted early childhood and puberty, as the periods of life at which a mild climate proves signally beneficial, there is no period of youth at which it may not be had recourse to with advantage, under the circumstances pointed out.

CLIMACTERIC DISEASE.

We have just seen that climate may be made available for the correction and removal of derangements of health, occurring in youth and impeding the development of the body; we also find that, as age advances, and the system begins to feel the weight of years, climate proves highly beneficial in arresting premature decay.

At the age of from fifty to sixty, sometimes earlier, a remarkable change often takes place in the health, without any very obvious cause. The person's appearance becomes greatly altered; his strength is diminished, and he generally becomes thin, and looks aged. He is unequal to the mental and bodily exertions to which he has been habituated; and the consciousness of this frequently induces a depression of spirits and fretfulness of temper; or these may exist as direct effects of the bodily disorder. With the more general evidences of deteriorated health, some organs of importance to life, most frequently, the digestive organs, show symptoms of disorder. An habitual morning cough, with more or less of expectoration, cutaneous eruptions, swellings, and pains in the joints,

or nervous affections, chiefly of a painful kind, amounting even to tic-douloureux, often precede and accompany this state: or the individual lapses into a general cachexy, without much evident local disease. The whole system is, I believe, in these cases, in a morbid condition. If such a person is attacked with any acute disease, the constitution may sink under it with great rapidity.

This state constitutes what is not unaptly termed in common language "a breaking up of the constitution;" which, in truth, it generally proves to be, if not judiciously treated.[1]

These symptoms of premature decay originate often in too much mental exertion, close attention to business, and its consequent cares and anxieties; frequently they are the effects of a sedentary life and an habitual system of full living; more frequently still, they are the result of the combined influence of these causes. From whatever cause the disorder proceeds, one or two winters passed in a warm climate, with the adoption of such a regimen, and the use of such other remedial measures as the particular case may require, will prove of essential service in arresting the progress of decay, and restoring the invalid to a state of better health.

Dr. Warren, of Boston, United States, informed me, that he had frequently been struck with the beneficial influence which a visit to Europe had in renovating the health of his countrymen about the middle period of life, when the constitution had begun to flag, from application to business and the cares and duties of life: and he himself experienced, from his visit, a similar improvement in his own health.

The change of climate, in this case, is no doubt a very complete one, and is accompanied with all those favourable circumstances which contribute so much to aid climate in the restoration to health. Any thing, indeed, more likely to produce a favourable change in the constitution, and call forth its latent energies, than a visit to Europe by a citizen of the United States, can scarcely be imagined.

When a change of climate cannot be accomplished, great benefit may be obtained from a change of air in our own country; from the use of warm or tepid sea-bathing, and a course of such warm mineral waters as are suited to the case. But to derive permanent benefit from these measures, the invalid must henceforth change his mode of life, and eschew those causes which first brought him into jeopardy.

Persons just returned to Europe, and whose constitutions have suffered by a long residence in a tropical climate, will find great advantage in spending one or more winters in the south of Europe before finally settling in this country.[2] The great object in such

[1] See an excellent paper on the *Climacteric Disease*, by Sir Henry Halford, Bart., President of the Royal College of Physicians.—*Medical Transactions*, vol. iv. p. 316, &c.

[2] For some very judicious advice to persons returning from a warm climate, the reader is referred to Dr. James Johnson's Essay on Morbid Sensibility of the Stomach and Bowels as the Cause of Indigestion, &c. Tenth edition. 1840.

cases is to maintain an active state of the circulation on the surface and extremities, by warm clothing, exercise, friction, and the use of the warm bath. By these measures, any sudden change in the relative state of the circulation and secretion of the skin and internal organs, the consequence of a removal from a hot to a cold climate, will be obviated, and pulmonary and hepatic diseases prevented.[1]

Friction in particular may be made a most efficient means of promoting an active state of the cutaneous circulation. The flesh-brush, horse-hair gloves, or flannel, may be used, according to the sensibility of the skin; but the friction, to be effectual, should be active, and applied over the whole surface, particularly the extremities. Sponging the chest and arms every morning with cold water, will also aid in promoting the same objects. When the skin is torpid or relaxed, friction may be advantageously employed, before the cold sponging as well as after it.

When the biliary system is greatly deranged, a frequent occurrence with natives of this country who have passed some time in India, a course of mineral water will prove very useful, particularly after a winter spent in the south of Europe. Mineral waters are frequently found to remove what are commonly called biliary symptoms, indigestion, low spirits, &c., by restoring a regular and healthy action of the liver, of the bowels, and of the skin.[2]

There are various other states of impaired health, in which change of air and climate prove very beneficial. Indeed it would be difficult to name the chronic complaint, or the disordered state of health, which would not admit of being ameliorated by the judicious adoption of such a measure.

In the convalescence from fevers and other acute diseases, no remedy is so effectual in restoring the invalid to health, as a well-timed change of air; and if the disease has had its origin in causes dependant upon the locality, such a change is almost essential to recovery. But the amount of benefit to be derived from change of air will depend greatly upon the judgment with which it is employed both as regards the condition of the patient and the selection of the place. The convalescence from acute diseases should be fully established, before the removal is attempted, otherwise a relapse, in place of improvement, is very likely to be the consequence.

Ague affords an exception to this rule. In this disease the first

[1] The great prevalence of pulmonary diseases among the natives of tropical climates who come to this and other cold countries, is doubtless, chiefly owing to the influence of a cold and humid atmosphere upon their system. It is in such persons, and in young children, that tuberculous diseases are more speedily induced, and where inflammation appears more intimately connected with the production of tubercles. The rapid progress of the disease, in both classes of persons, is to be explained, principally, I believe, by the circumstances of their habit of body being that which is most disposed to tuberculous affections,—the most nearly allied to tuberculous cachexy.

[2] See Appendix on *Mineral Waters*.

intermission should if possible be taken advantage of to remove the patient from the situation in which it has occurred, and a farther residence in which will render the cure difficult. The remedies which will produce little effect upon an intermittent fever, in the locality where it originated, will often effect a speedy cure when the patient is removed elsewhere.

The selection of the place will depend in some measure on the nature of the complaint. It should always be of a different character from that in which the patient lives, more especially in the malarious class of diseases to which we have just alluded. For a person who has had acute pulmonary disease, a mild air and sheltered situation will be the most favourable, until the pulmonary irritation has subsided; after which another change to a more bracing air may be attended with great advantage, especially to persons of a languid and relaxed system. The object desired by the first change is to soothe and allay irritation in the affected organs; by the second, to give tone to the system generally. A succession of changes will in almost all cases prove more beneficial than a residence at any one place.

Children profit by change of air with surprising rapidity; and there are few cases of deranged health at an early age in which it does not merit the first rank in the list of remedies. Delicate females also benefit greatly; indeed, in proportion to the natural susceptibility of the individual, is the beneficial influence of a judicious change of air evinced. It is to the young and delicate the best and often the only admissible tonic; and we have daily occasion to regret the straitened circumstances which keeps many such patients lingering in a state between health and disease, in the confined air of the city, or in some equally unhealthy residence in the country, when they might be restored to health and vigour, by a temporary change to a purer air.

PART THE SECOND.

ON CLIMATES.

INTRODUCTORY REMARKS.

Besides *Directions* for invalids, before commencing a journey, while traveling, and during their residence abroad, a few observations on *Ventilation* and *Unhealthy Residences* may advantageously find place here, as the subject is one having immediate reference to that which has just been considered, as well as to that about to engage our attention.

Ventilation.—The necessity of pure air for the maintenance of health is so little understood, and the ventilation of houses in consequence so thoroughly neglected, that a few observations on the subject will not be out of place in a work, the chief object of which is to inculcate the value and direct the application of air and climate, as means of preserving health and curing disease.

Nothing contributes more effectually to strengthen the system, and render it capable of bearing the vicissitudes of climate, than the constant respiration of pure air. On the other hand, nothing tends more certainly to weaken and relax the constitution, and render it susceptible of the impression of a cold and humid atmosphere, than breathing impure air.

When an equable temperature combined with free ventilation is generally provided for in our houses, there will be a great improvement in the public health.

In the construction of a house, the dimensions of the bedrooms and the means of ventilating them, ought to be most important considerations, whereas they are comparatively little thought of. Nothing, indeed, can be constructed on a worse principle than the bedrooms in this country generally are. Their small size and their lowness render them very insalubrious, unless well ventilated; and the case is rendered worse by the close windows, and by the thick curtains with which the beds are so carefully surrounded, as if to prevent the possibility of the air being renewed. The consequence is that the occupants are breathing vitiated air during the greater part of the night, that is, during almost one half of their lives.[1]

[1] The remarkable lowness of the bedroom floors in numerous new houses at this moment building in and around London, affords abundant proof of the truth of these remarks.

These remarks, in regard to the importance of free ventilation in bedrooms are still more applicable to nurseries, school-rooms, and all places occupied by the young; as also to the work-shops of that numerous class of our population engaged in sedentary occupations.

To secure effective ventilation, or a continuous renewal of the air in all inhabited rooms, the pure air should be made to enter from below, and the deteriorated air to escape from above,—a circulation in accordance with the natural motion produced in fluids by difference of temperature, and prevented only by the ignorant interference of art. To understand the proper method of ventilating, we have only to attend to the currents which take place naturally in all inhabited rooms. Air, as it increases in temperature, or becomes loaded with watery vapour, has its weight diminished, and is forced up, if means are not taken to prevent it. Now the air in an inhabited apartment being both heated and generally combined with a portion of watery vapour, by respiration, &c., becomes specifically lighter, at the same time that it is vitiated, and the most impure part rises to the roof. If it had the means of escape, it would be gradually driven out by an equal quantity of pure air entering below, which, becoming heated and deteriorated in its turn would in a similar manner ascend and escape; thus would a continual renewal of the air go on without any trouble on our parts. Unless provision be made for the escape of the ascending current of impure air, no admission of external air will secure ventilation.[1]

Unhealthy Residences.—If it is necessary to secure proper ventilation within our dwellings, it is no less necessary that the air around them should be pure and salubrious. The best internal arrangements for ventilation, cannot change the character of the external air, nor prevent its injurious effects on the health of the inmates.

Persons living in low damp or confined situations, rarely enjoy that degree of vigorous health of which their constitution admits. Without suffering from any formal disease, they are subject to various complaints which often embitter their life, and render them much less capable of bodily and mental exertion than they would be, if placed in a situation more congenial to their constitution.

Dyspepsia, and its various concomitants, headaches, general nervous irritability, and a variety of anomalous nervous complaints, with languor and depression of spirits, may be enumerated among the evils resulting from a residence in unhealthy situations. All these ailments, in addition to others peculiar to the sex, are more severely felt by females, because they are more susceptible, and at the same time more confined to the influence of the locality in which they reside; and during infancy and childhood, the effects of a confined, humid air are most destructive; at this early age

[1] For more detailed explanations with respect to ventilation and the means by which it may be carried into effect, the reader is referred to Dr. Arnott's *Elements of Physics*, or to his Treatise on *Warming* and *Ventilating*.

scrofula is almost the certain consequence of residing in such a locality.

Under these circumstances, nothing affords so effectual and speedy relief as a change of residence, even for a short time, to a drier and more elevated situation, and a more bracing air. In very many instances, this is indeed the only means of restoring the person to a better state of health. The increase of strength and buoyancy of spirit—the mental energy, as well as bodily vigour, which persons residing in a close humid atmosphere experience on changing to a dry, open, and elevated part of the country, surprise and delight them, and they hope that this state of well-being may be permanent; but a return to their former residence soon convinces them that their feelings of increased health were temporary, and dependent entirely upon their change of residence.

Much might, no doubt, be done to improve the condition of many unhealthy places, by removing all obstacles to a free circulation of air, and all sources of humidity, especially stagnant waters, by draining, &c. But until the public are fully acquainted with the circumstances which require attention in the selection and preparation of situations for building, the complaints alluded to, and which may be fairly styled malarious, will continue more or less.

In a climate naturally humid, like that of Great Britain, it is of the first importance in the selection of a situation for building that it should admit of a free circulation of air and thorough drainage. In proportion as the soil is impermeable or retentive of humidity, so ought the site of the building to be high, in order to allow of sufficient fall for the water to drain off. Surface drainage around houses is also a measure which should never be neglected when the soil is retentive.

Trees and thick shrubbery close to houses are not only direct causes of impure humidity, but they act still more injuriously by impeding a free circulation of air, and the entrance of the sun's rays. This is one of the most frequent, and I may add, most powerful causes of insalubrity in country houses in England; and the case is frequently rendered worse by the addition of stagnant water, in the form of ponds. Many country houses, and indeed whole tracts of country are rendered unhealthy by the quantity of wood alone. The over-wooded state of the parks of many of the nobility and gentry, especially in a level country, is a fertile source of ill-health, often of positive disease, more especially in the autumn and spring, such as fevers, bowel complaints, rheumatism and other affections already alluded to, which, although not remarkable for severity, are not less causes of distress from their great frequency. Were trees around houses, and wood of all kinds, especially thick underwood, kept more distant, and were rank grass, stagnant water, and other obvious sources of impure humidity removed, and were more care taken to drain the surface soil, a marked improvement would be effected in the health of the inhabitants of the country

generally, and more especially in our thickly wooded and marshy districts.[1]

Directions for invalids making a change of climate.—I shall now endeavour to make the invalid acquainted with the circumstances which demand his more particular attention, previously to setting out,—during his journey, and after he is fixed in his new residence. This is a matter of the greatest consequence; and a want of due attention to it, is one of the principal causes why much less benefit is derived from climate than would otherwise be the case.

Too much is generally expected from the simple change of climate. From the moment the invalid has decided upon making such a change, his hopes are solely fixed upon it; while other circumstances, not less conducive or necessary to his recovery, are considered of secondary importance, and sometimes totally neglected. This is an error not always confined to the patient; his medical adviser frequently participates in it; nor is this difficult to be accounted for. The cases hitherto sent abroad have been, for the most part, consumptive, or other diseases, of long standing, in which the ordinary resources of our art have failed; therefore, when change of climate has at last been determined upon, the physician, as well as the patient, is disposed to look upon it as the sole remedy.

But, as I have witnessed, on a pretty extensive scale, the injury arising from this over-confidence in the unaided action of climate, and the consequent neglect of other things of no less importance, I particularly request the attention of invalids to the following remarks.

In the first place, I would strongly advise every person who goes abroad for the recovery of his health, whatever may be his disease, or to what climate soever he may go, to consider the change as placing him merely in a more favourable situation for the operation of other remedies in the removal of his disease; in fact, to bear constantly in mind that the beneficial influence of traveling, of sailing, and of climate, requires to be aided by such a dietetic regimen and general mode of living, and by such remedial measures, as would have been requisite in his case, had he remained in his own country. All the circumstances requiring attention from the invalid at home, should be equally attended to abroad. If in some things greater latitude may be permitted, others will demand even a more rigid attention. It is in truth, only by a due regard to all those circumstances, that the powers of the constitution can be enabled to throw off, or even materially mitigate, a disease of long standing, in the best climate.

It may appear strange to some of my readers that I should think it requisite to insist so strongly on the necessity of attending to

[1] If a board of health existed in this country, it would be part of their duty to draw up and circulate instructions for the construction of buildings, and the preparations necessary for rendering them healthy residences.

these things; but I witnessed the injurious effects of a neglect of them too often, not to deem such remarks called for in this place. It was, indeed, matter of surprise to me, during my residence abroad, to observe the manner in which many invalids seemed to lose sight of the object for which they left their own country. This appeared to arise chiefly from too much being expected from climate.

The more common and more injurious deviations from that system of living which an invalid ought to adopt, consist in errors of diet; exposure to cold, over-fatigue, and excitement in what is called "sight-seeing;" frequenting crowded and overheated rooms, keeping late hours, &c. Many cases have fallen under my observation, in which climate promised the greatest advantage, but where its beneficial influence was counteracted by the injurious operation of these causes. Every invalid who goes abroad, must make up his mind to submit to many sacrifices of his inclinations and pleasures, if he expects to improve his health by such a measure.

In order that the patient may derive advantage from his journey, or at least that his complaint may not (as often happens) be increased by it, some preparatory measures will generally be requisite before he sets out. Traveling is exciting to most people; and to those who have chronic inflammation of any organ, however latent or obscure, it very often proves injurious, particularly during hot and dry weather. Almost every one in health is sensible of the excitement arising from traveling. The appetite is generally increased, while the secretions and excretions are much diminished. The consequence is a degree of excitement of the system, not unaptly termed by travellers, "a heated state." What in health amounts only to a slight degree of excitement, easily removed by a few days' rest, and the employment of some common cooling remedies, often proves of serious consequence to the invalid who labours under, or is even disposed to any inflammatory affection.

When, therefore, the patient's disease is of an inflammatory nature, or threatens to assume such a character, his condition should be well examined before he commences a journey or voyage. If any undue vascular excitement exists, measures should be taken to reduce it by proper regimen,—by rest, by tepid bathing, &c.; and local, or even general bleeding may be requisite in some cases. Simple congestion, or an overloaded state of the vascular system, general or local, will also require to be diminished. In short, before one step of the journey is taken, all excitement or plethora should be removed, as far as the nature of the case admits.

Having his system in a proper state when he sets out, the invalid should endeavour to keep it so during the journey,—by adhering to a light diet, taking care not to overload the stomach even with the mildest food, by abstaining from wine and spirits of every kind, and by maintaining the regular action of the bowels. The latter object is best effected by laxatives, such as castor oil, and electuary of senna, or by the use of mild lavements. Purgatives of the more drastic kind, such as generally enter into the composition of pills,

are apt to irritate the bowels, increase an attack of hemorrhoids, a frequent consequence of neglected or irritated bowels while traveling. When such medicines are used they should be of the least irritating nature, and the dose so regulated as to produce a laxative effect only. The watery extract of aloes, with mastich and extract of hyosciamus, forms one of the best combinations. To these means of maintaining the system in a cool state, I may add the use of warm or tepid bathing, which should not be omitted where it can be conveniently procured, and when there are no objections to it from the peculiar nature of the patient's disease. When used with the necessary precaution it is free from danger, and will generally prove very useful in obviating the exciting effects of traveling. The temperature may be from 94° to 97° of Fahrenheit's thermometer, according to the feelings of the patient. The forenoon, or, rather, just before dinner, is the best period for taking the bath, and from twenty minutes to half an hour the proper time for remaining in it. By adopting the general regimen mentioned, and by traveling such distances only as the strength can bear, resting for a day when it is found necessary, the invalid will not only escape the injurious effects frequently produced by traveling, but arrive at his winter residence in a much better state of health than when he left his own country. This, I may observe, however, is a rare occurrence in the usual mode of conducting a long journey; for, even when no positive increase of disease is the result, the traveller has frequently sufficient cause to regret his inattention to the precautions above mentioned; as there is induced a degree of general excitement, and a deranged state of the secreting organs in particular; the injurious effects of which may be felt by a delicate constitution during a considerable part of the winter. The invalid thus not only loses the benefit which the journey might have produced, but, in part, that also which he would have obtained from his winter residence. If the invalid is wise, he will keep these things in mind. It is the duty of his medical adviser to prepare him for his journey, by allaying any excitement which may exist in his system, and by removing any other morbid affections with which the principal disease may be complicated, and which often form insurmountable obstacles to recovery.

Having his system thus prepared, the invalid should, on his part, endeavour to maintain it in the same state, by a strict adherence to the prescribed regimen. If, during his journey, his pulse should become frequent, his skin dry and hot, or if he has thirst or a dry tongue in the morning, or if his nights are restless, he may feel assured all is not right. He is over excited, either by too full a diet, by too rapid traveling, by exposure to a hot sun, or by the bowels being overloaded. In the generality of such cases, a few days' rest, and the use of some such cooling remedies as have already been mentioned, will allay the irritation; and the invalid may then pursue his journey, taking care to avoid whatever he has reason to believe excited him before.

Arrived at his place of residence, some measures of the same kind will probably be necessary; as it will rarely happen, that one shall reach the end of a long journey, even under the best management, without some degree of temporary excitement or derangement of the system. The invalid should, if possible, be spared the examination and selection of apartments, and particular care should be taken to have these thoroughly dry and ventilated before he enters them; this, I may remark in passing, is not to be done in any part of the continent of Europe, without the use of fires.

There are some other circumstances more immediately connected with the change of climate, which require to be noticed here. As the traveller advances to the south, the sensibility of the system is increased, and hence his mode of living should be regulated accordingly. Persons, for example, bear a diet in England which would prove too exciting to them in Italy: some articles of food, also, are more apt to disagree in the south; of this kind are fish, milk, and even vegetables, all of which should be used in great moderation by persons in delicate health. As soon, therefore, as a person changes his climate, he ought to adapt his manner of living to that which he has begun to inhabit. Besides the diet, the clothing also requires particular attention. This should be as warm during the winter in the south of Europe as in England. The feelings are altered in respect to temperature, and houses being relatively colder in Italy, warmer clothing is necessary within doors than in this country. It is advisable, also, to keep the whole apartment at a moderate temperature, and to avoid approaching too near the fire. To seek also too exclusively the sun's rays is a habit particularly injurious in the south of Europe, more especially during the spring. From these causes arise headaches, catarrhs, inflammatory affections of the chest, and even fevers.

This seems the proper place to say something of the best periods of traveling. With respect to the routes to the different parts of the Continent the ordinary *Guides* and books of *Directions* for travellers, contain such full information as to render it unnecessary that I should enter on that subject.

There are two seasons when the invalid, who means to pass the winter in Italy, may best leave England, early in June and early in September. In setting out at the former period, he may pass the summer in Germany or Switzerland,—a plan which will suit the health of many. By leaving this country in September, the summer heat will be avoided, and, by conducting the journey properly, the patient may enjoy a mild climate to the place of his destination. But to insure this, nothing should be allowed to interfere with the steady progress of the journey, except such periods of repose as the invalid may require. The best route will be through Switzerland, and across the Simplon. The proper time for entering Italy is the end of September, or early in October.

For Nice and the south of France, the period of departure need not be quite so soon. Although an invalid can scarcely have too

much time for his journey; inasmuch as, if conducted with judgment, and made at the proper season, it will be more beneficial to his health the more time it occupies, within reasonable limits. When the weather is chilly, the invalid should not commence his journey too early in the morning, nor until he has taken a light breakfast; and he should endeavour to arrive at his sleeping quarters before evening.

One of the most exciting things to a sensitive invalid is exposure to a powerful sun; this should therefore be sedulously avoided, by resting during the middle of the day when the weather is oppressively hot.

When there is a disposition to coldness of the extremities, it is of essential consequence to the well-being of the patient, to guard against this. If the surface and extremities are kept warm, a delicate person will often bear traveling in a very cool atmosphere, and even derive advantage from it. Persons with the slightest disposition to inflammation of the throat, trachea, or lungs, should avoid exposure to cold or high winds, or a powerful sun, and, still more, alternations of these, which are very apt to occur in valleys, and in crossing mountains. Invalids should also avoid approaching too near a strong fire in the evenings after a journey.

The foregoing observations I consider to apply, more or less, to all invalids going abroad for the benefit of their health: more minute instructions respecting the conduct of those affected with particular diseases, and while residing at different places, will be found in the articles devoted to the consideration of such diseases and places.

CLIMATES OF ENGLAND.

I shall commence my survey of climates for invalids, with the most favourable for winter residences in this country. In my account of these I shall have occasion to compare them with each other, and with the most esteemed climates in the south of Europe; both in regard to their physical qualities, and their influence on diseases.

The *Mild Region* of England admits of being divided into four districts, or groups of Climate; that of the *South Coast* comprehending the tract of coast between Hastings and Portland Island; the *Southwest Coast*, from the latter point to Cornwall; the district of the *Lands-End;* the *Western Group*, comprehending the places along the borders of the Bristol Channel and estuary of the Severn. We shall find that each of these regions has some peculiar features in its climate which characterise it, and distinguish it from the others, both as regards its physical and medical qualities.

LONDON.

As a point of comparison, and for other reasons, it will be useful to begin with a brief notice of the climate of the metropolis. London is indebted for the peculiarities of its climate to artificial circumstances chiefly. To the crowded assemblage of so many living beings; the multifarious processes ministering to their wants; the countless operations of art; the influence of buildings, &c. in retaining, augmenting and diffusing warmth, by reflection, by radiation, and in other ways. Besides these, the more indirect influence of perfect draining and paving, in contributing to maintain a dry state of the soil and atmosphere, must be taken into account. All these circumstances tend, some in a greater, others in a less degree, to the creation of a peculiar climate in London. As regards temperature, we have their influence very accurately demonstrated; but the subject becomes more difficult when we would discover the other elements which constitute the complex problem of climate.

The mean annual temperature of London is 50° 39, being one and a half degree above that of the environs.[1]

This difference of temperature between the metropolis and surrounding country is very unequally distributed throughout the year, and throughout the day. The excess of the city temperature is greater in winter than in summer. It is at its maximum in January, at which time it exceeds that of the environs by 3°. In the spring months, the temperature of the environs becomes nearly equal to, and in the month of May rather exceeds that of London. That accurate observer, Howard, further shows, that this excess of temperature of the city "belongs, in strictness, to the *nights;* which average three degrees and seven tenths warmer than in the country; while the heat of the day, owing without doubt, to the interception of a portion of the solar rays by a constant veil of smoke, falls, on a mean of years, about a third of a degree short of that on the open plain."[2] As was also to have been expected, the temperature of London does not show so extensive a range between its extremes, either during the year, the month, or the day, as the temperature of its environs; and the amount of variation between the successive days, which shows the steadiness of temperature, is also considerably less in the former than in the latter. Howard's observations, also, prove that although London is warmer than the country, it acquires and loses its heat more slowly. It will be the duty of the physician to decide how far this gain in warmth, (more particularly in the night,) in steadiness of

[1] The temperature of the environs is calculated from Howard's observations made at *Plaistow*, *Stratford*, and *Tottenham-Green*.

[2] The *Climate of London*, deduced from Meteorological Observations made in the Metropolis, and at various Places around it. By Luke Howard, Gent. Second Edition, vol. i. p. 237. London, 1833.

temperature, and in a greater degree of dryness and stillness, is counterbalanced by a diminution of the purity of the atmosphere, and of other qualities of climate. The benefit so often experienced by delicate invalids on coming from the country to London, in the winter or spring, is no doubt owing to the qualities of the climate above enumerated. It is during the night that the climate possesses the greatest advantages for the sensitive invalid; in addition to its warmth and dryness the atmosphere is then in its purest state, being free from the smoke and dust with which it is loaded and obscured during the day, by the numerous fires and the unceasing traffic of carriages, &c.

I shall not at present enter more fully upon the consideration of the Climate of London: its peculiarities will be made more apparent in the sequel, by the frequent comparisons which we shall have occasion to make between it and the other climates which we purpose to describe: and in the mean time, I can confidently refer those who are desirous of further information on the subject, to the excellent work of Mr. Howard, just referred to, and also to the memoir of Professor Daniel, in his ingenious *Meteorological Essays*.

THE SOUTH COAST.

This extensive and populous coast, from its vicinity to the metropolis, and more easy access generally, possesses several obvious advantages over the more distant parts of our Island. Various places along it are more or less frequented by invalids, who migrate from the northern and interior parts of the island in search of milder seasons; but here, as elsewhere, we have to regret that more registers of the weather have not been kept. For want of more general data, our observations can apply correctly only to Hastings, Brighton, Chichester, Gosport, Southampton, and Undercliff, in the Isle of Wight.

Were we to rest contented with the result of the mean annual temperature, we should find that there was very little difference between that of the South Coast and of London. But when we descend to particulars, we observe that there does exist a considerable difference in their temperature, arising from the mode of its distribution. It is because the higher degree of the temperature of London, and the interior of the island in summer, compensates for the lower degree in the winter, that the climate of these places appear to equal that of the South Coast. The mean temperature of the latter, however, during the winter months,[1] is from one to two degrees above that of London. The superiority is greatest in those months in the following order:—January, February, December. It

[1] It may be proper here to state that, in this work I adopt the more common division of the seasons; including under *Winter*, the months of December, January, and February; under *Spring*, those of March, April, and May; under *Summer*, June, July, and August; and under *Autumn*, September, October, and November.

diminishes in March; and in April the temperature of the coast falls nearly two degrees below that of London and its vicinity;[1] in May, it is a degree and a half, and in the months of June, July, August, and September, about one degree less. In October, the mean temperatures are nearly equal, but in November that of the coast begins to rise above the other.

It is important to remark, that the difference of temperature, in favour of the coast, during the winter, occurs principally between the *lower* extremes; so that the temperature of the day is nearly the same at both places, whilst that of the night is considerably warmer on the coast. For instance, the difference between the minima of Gosport and London, during the winter, is to the difference of their maxima as seven to three. The minimum temperature, observed on the South Coast generally, is from three to four degrees above the minimum temperature observed at London. Nor is the temperature of the South Coast subject to the same extent of range as that of London and the interior. Thus, the difference of the mean temperature of the warmest and coldest months in London is 26°, while at Gosport it is only 21°; and the mean of the monthly ranges at London is 34°, and at Gosport only 31°. In steadiness of climate, as deduced from the variation of temperature between successive days, the South Coast does not appear to possess any very remarkable superiority over London itself. Of the places on this tract of coast which have been particularly examined, Southampton is the most variable in its temperature, equaling in this respect the environs of London.

More rain falls on the South Coast than at London, the ratio being, as nearly as could be ascertained, as 30 to 25: but the quantity varies considerably at different parts. Of the places on this coast, frequented by invalids, Hastings, Brighton, and Undercliff, may be considered as having, respectively, peculiar climates.

HASTINGS.

This place has long enjoyed the reputation of being one of the mildest and most sheltered winter residences on the South Coast. Owing to its low situation, and the height of the neighbouring cliffs, it is protected in a considerable degree from all northerly winds. To those of the south it is fully exposed; and although the gales from that quarter are less violent on this coast than on that of Cornwall and Devonshire, still, during the winter season, southwesterly winds often prevail many days successively. In respect of the degree of protection from northerly and northeasterly winds, there is a considerabie difference in different parts of Hast-

[1] On the parts of the coast which are more particularly exposed to the influence of the northeast winds, this difference of temperature between the coast and the interior is still greater, when estimated by its effects on the living body.

ings.[1] The lower situations facing the beach are particularly well sheltered by a perpendicular cliff which rises immediately behind them. Other parts of the town are more or less exposed, according to their elevation and aspect. In another point of great importance in the character of a winter residence for invalids, I allude to sheltered exercising ground, Hastings is not very favourably circumstanced. It is true, the parade affords a sheltered walk of small extent, close upon the beach, and there is a ride along the shore, through St. Leonards, which is protected by a range of cliffs from northerly winds; but it is the only sheltered ride of any extent in the neighbourhood.

With respect to the comparative merits of this climate, it may be observed, that its superiority in winter appears to be confined chiefly to the months of January and February. During these two months, and in the spring also, it has the advantage of being more effectually sheltered from north and northeast winds, than the other places frequented by invalids on the coast of Sussex. Hastings is said to be comparatively little subject to fogs in the spring; the fall of rain is also said to be less than at other parts of the same coast.

As might be expected from the low and sheltered situation of Hastings, it will be found a favourable residence generally to invalids labouring under diseases of the chest. Delicate persons, who require to avoid exposure to the northeast winds, may pass the cold season here with advantage. But in recommending Hastings as a residence in both instances, it will be necessary to take into consideration the influence of sea air; for, owing to the close manner in which this place is hemmed in on the sea by steep and high cliffs it has an atmosphere more completely marine than almost any other part of this coast, with the exception of St. Leonards.

Judging from my own observation, I should say that the climate of Hastings is unfavourable in nervous complaints, more especially in nervous headachs connected with, or entirely dependent upon an irritated condition of the digestive organs, and, also, in cases where a disposition to apoplexy or epilepsy has been manifested. But it will be understood from what has been already stated respecting the topographical relations of Hastings, that this effect of its climate is chiefly experienced in the lower or more confined parts; nor is such an effect peculiar to this place; it is common, I believe, to all places similarly situated. The class of persons alluded to, if induced to reside for any length of time at Hastings, should avoid the more confined situations below the cliff, and rather seek such quarters as are more open and elevated, yet in some degree protected from north and northeast winds.

[1] On the Curative Influence of the Southern Coast, &c., p. 23. Also, On the Adaptation of the Different Parts of Hastings to Different Diseases. By Dr. Harwood.

ST. LEONARDS.

This place is about a mile to the westward of Hastings, and, like it, possesses a dry and absorbent soil. St. Leonards is separated from the sea beach merely by a carriage road and broad esplanade, and lies along the base of a range of cliffs which protect it from northerly winds. The circulation of the sea atmosphere is more free and uninterrupted here than at Hastings, and the cliffs being lower, cold draughts, and counter-currents of wind from above are less experienced. The breadth and extent of its esplanade also, and the protection afforded by the colonnades for walking exercise, are circumstances of considerable importance to the invalid.

In other respects, the climate of St. Leonards may be considered as almost identical with that of Hastings.

Dr. Harwood thinks Hastings and St. Leonards most favourable for invalids from November to the end of February.[1]

In the extent and quality of accommodations, St. Leonards much exceeds Hastings.

Ague is not unfrequent in the neighbouring districts; but Dr. Harwood never knew an instance of a *visitant* being attacked with the complaint.

BRIGHTON.

Brighton has a climate in many respects the reverse of that of Hastings, the air being dry, elastic and bracing; yet even within the limits of Brighton a considerable diversity of climate is to be found. The true character of the Brighton climate belongs, in strictness, to the part of the town east of the Steyne; here the air is eminently dry, sharp, and bracing. That to the westward is somewhat damp, but milder. Delicate, nervous invalids are very sensible of this difference, and generally feel better in the western part. Those who suffer from a relaxed state of the system, enjoy their health more fully on the Marine Parade. The Steyne forms an intermediate climate, being sheltered in some degree from the cold northeasterly winds, on the one hand, and the boisterous south-westerly winds on the other.

Compared with the other parts of this coast, the climate of Brighton appears to the greatest advantage in the autumn and early part of the winter; when, as we have seen, it is somewhat milder, and more steady than that of Hastings. Accordingly, in all cases in which a dry and mild air proves beneficial, Brighton, during this period of the year, deserves a preference over every other part of the South Coast which I have had an opportunity of observing. During the spring months, on the other hand, owing to its exposure

[1] On the Climate of the Hastings Coast; Viewed in Reference to its Effects in Diseases of the Throat and Chest. By John Harwood, M.D., F.R.S.

to the northeasterly winds, this climate proves cold, harsh, and exciting to delicate constitutions. At this season, therefore, sensitive invalids generally, and more especially persons with delicate chests, should avoid Brighton. The climate of Hastings, as I have already remarked, is milder in the latter part of the winter and spring.

For convalescents, and all persons who require a dry and bracing air, and in whose cases the sea shore is suitable, Brighton presents one of the most favourable climates which can be selected. For children and young persons generally, it forms an excellent residence. A large proportion of invalids also, who require to pass the winter in the warmer parts of our island, may remain with great advantage at Brighton during the autumn. The weather is then generally mild, and favourable for exercise on horseback, or otherwise, particularly as from the calcareous nature of the soil, rain dries up with great rapidity. There is certainly something very peculiar in the influence of the air of Brighton upon the nervous system. I believe that relaxed nervous invalids, whom it does not irritate, feel more vigour and energy here than at almost any place with which I am acquainted; on the other hand, persons of an irritable nervous system, or those subject to gastritic dyspepsia, or a dry irritable state of skin, will not derive advantage from the climate of Brighton; on the contrary, their complaints will generally be aggravated by it. From the disposition to gastric irritation experienced at Brighton, invalids, and dyspeptic invalids in particular, should adhere to a mild diet, more especially on their first arrival.

From Brighton, the delicate invalid may remove during the winter and spring to the more sheltered situations afforded by Undercliff, Hastings, or Torquay, a plan which will prove more advantageous to many invalids than passing the whole season at any one of these places.

ISLE OF WIGHT.

The Isle of Wight, from the variety which it presents in point of elevation, soil, and aspect, and from the configuration of its hills and shores, possesses several peculiarities of climate and situation, which render it a very favourable residence for invalids throughout the year.

The part of the island adapted as a winter residence for invalids, is that denominated Undercliff, which comprehends a tract of country, extending from Dunnose to St. Catherine's Hill, on the south-east coast, about six miles in length, and from a quarter to half a mile in breadth. This singular district consists of a series of terraces, formed by the upper strata, composed of chalk and green sand, which have slipped down from the cliffs and hills above, and been deposited in irregular masses upon a substratum of blue marl. The whole of the Undercliff, which presents in many places scenery of the greatest beauty, is dry and free from moist or impure exhala-

tions, and is protected from the north, northeast, northwest, and west winds, by a range of lofty downs, or hills of chalk and sandstone, which rise boldly from the upper termination of these terraces, in elevations varying from four to six and seven hundred feet;[1] leaving Undercliff open only in a direct line to the southeast, and obliquely to the east and southwest winds, which rarely blow here with great force.

The physical structure of the Undercliff has been carefully investigated and described by the geologist,[2] and the beauties of its scenery have been often dwelt upon by the tourist, but its far more important advantages, as a winter residence for the delicate invalid, seem but recently to have attracted attention.

The continuous range of high hills which separates this district from the rest of the island, protects it most effectually from all northerly winds; while numerous short ridges, projecting from the main range towards the sea, break, in a considerable measure, the violence of the southwest winds. The protection afforded by this northern barrier is greatly increased by the very singular and striking abruptness with which it terminates on its southern aspect. This, in many places, consists of the bare, perpendicular rock of sandstone, in others, of chalk, assuming its characteristic rounded form, covered with fine turf and underwood; but so steep as to justify the appellation conferred on the beautiful tract which extends from its base to the sea shore.[3] The defence afforded by this natural bulwark against northerly winds is, indeed, more perfect than any thing of the kind I have met with in this country; and the transition of climate experienced on descending from the exposure of the open and elevated down to the shelter of the Undercliff, will remind the Italian traveller of his sensations on entering the valley of Domodossola, after quitting the chilly defiles of the Simplon, in an autumn evening. You feel at once that you have entered a new climate; and the luxuriance of the vegetable tribes, which you find around you, proves that the impression made on the senses has not been deceitful.

The whole of the Undercliff, however, is not protected in an equal degree. The eastern part, comprehending the country from Bonchurch to the village of St. Lawrence, a distance of nearly three miles, has, in this respect, the advantage over the western portion, which is more open to the southwesterly winds; but even here there are several very sheltered spots; and the temperature does not differ materially from that of the eastern division. The

[1] The height of the range is greatest at its two extremities; St. Catherine's Hill is nearly 900, and St. Boniface Down 800 feet above the level of the sea. The intermediate parts of the range vary from 650 to 700 feet.

[2] See the splendid work of Sir Henry C. Englefield, (which contains Mr. Webster's geological observations,) "A Description of the Principal Picturesque Beauties, Antiquities, and Geological Phenomena of the Isle of Wight." London, 1816.

[3] Undercliff, *i. e.* under the cliff.

whole extent of Undercliff is, indeed, sigularly protected from winds; and, I apprehend, it will be difficult to find, in any northern country, a tract of equal extent and variety of surface, and I may add, (as by no means a matter of indifference to the invalid,) of equal beauty in point of scenery, so completely screened from the cutting northeast winds of the spring, on the one hand, and from the boisterous southerly gales of the autumn and winter, on the other. The termination of the Undercliff towards the sea shore is in a range of perpendicular cliffs, of from forty to sixty, or seventy feet in height, rendering it far from being a close and confined situation, a circumstance of no inconsiderable importance. It may, therefore, be represented as a lofty natural terrace, backed by a mountainous wall on the north, and open on the south to the full influence of the sun, from his rising to his going down, during that season at least when his influence is most wanted in a northern climate.

Owing to its elevation above the level of the sea, the Undercliff differs from most of the situations on our coast, in being less exposed to the direct and immediate influence of the sea air; a circumstance which, in a medical point of view, deserves consideration. Sea fogs are rare, except towards the end of May and during June, when they are more or less prevalent. Observation has proved that less rain falls at Undercliff than on the south coast generally, and even than at other parts of the Isle of Wight, a circumstance which might have been inferred from a consideration of the topographical relations of the place. The soil, consisting chiefly of the detritus of the sandstone and chalk from the incumbent cliff, is naturally dry, and speedily regains its dryness after rain. The nature of the rock, and the general shelving form of the surface, likewise contribute to render Undercliff a dry situation.

The climate is remarkably equable as well as mild and dry, and there are not many days during the winter in which the invalid cannot take some exercise in the open air. The mildness of the climate, during the winter months, may be in some degree estimated by the circumstance of myrtles, geraniums, sweet-scented verbena, heliotropes, and other tender plants, usually withstanding the winter in the open flower borders. The honey bee likewise continues working, in ordinary seasons, until after Christmas.

To the invalid who has cultivated natural history, this sheltered district possesses an additional advantage. It is rich in varied and interesting plants, and the specimens of natural history, with which it abounds, offer abundant inducement to exercise and mental occupation to the cultivators of this delightful science.

When we consider the numerous local advantages of the Undercliff, already detailed, the result of the Meteorological Observations appended, and take into account the still more conclusive evidence furnished by the condition of the exotic plants which grow there: it is evidently one of the warmest climates in our island, and most eligible for a large class of our delicate invalids. With respect to

the most decisive evidence of all, in a medical point of view, I mean the effects of the climate on pulmonary disease, my experience is favourable.

I have certainly seen nothing along the South Coast that will bear a comparison with it; and Torquay is, I apprehend, the only place on the Southwest Coast which will do so. But much more extended observations than we at present possess for either of these places, are required to determine their comparative merits. With a temperature nearly the same, the climate of Torquay is soft, but humid and relaxing; while that of Undercliff is dry, somewhat sharp, and bracing. The winter temperature at these two places differs very little. Although at Torquay the temperature sometimes rises higher, it likewise sinks lower than at Undercliff, giving the latter the advantage over it in equability of temperature. These qualities peculiar to the two places render them respectively suitable in different diseases, in different forms of the same disease, and in constitutions of a different character. For pulmonary invalids, the best season to be at Undercliff is from November to May.

It is to be regretted, that with all the natural advantages of the Undercliff, the accommodations are far from what they might have been. Since the publication, however, of the last edition of this work, the accommodations for invalids have been greatly increased, and although my suggestions have not been strictly attended to in the construction and position of the buildings, they have been so in numerous instances. Some good houses have been erected at Bonchurch for the accommodation of invalids; each house is surrounded by a portion of ground, and care has been taken to interfere as little as possible with the natural beauties of the place. The little village of Ventnor is fast rising into notice; a handsome church has been erected, some good hotels established, and several houses built for the accommodation of invalids.

We have now to consider the advantages of the Isle of Wight, as a summer residence for invalids. The Undercliff itself affords a mild summer climate; but as a change of air and scene are generally beneficial to the invalid, the summer months may be better passed by many in still cooler situations in other parts of the island.

Niton, situated on the western extremity, but without the limits of Undercliff, affords a cool summer residence. It has also the advantage of being in the vicinity of some of the finest scenery on the island, and at no great distance from the celebrated Sand Rock Spring.[1]

Cowes is likewise a good summer residence. The accommodations for sea bathing are pretty commodious, and it is also conveniently situated for exercise on the water.

[1] This powerful aluminous chalybeate source issues from the cliff, at an elevation of one hundred and thirty feet above the level of the sea. It is the strongest mineral water of the kind with which we are acquainted, and is, indeed, too strong to be drunk without large dilution. According to the

The little village of Sandown, on the eastern shore, forms a retired and pleasant summer residence, and is well suited for sea bathing, having a fine sandy beach. Shanklin, in the same neighbourhood, is a favourite summer retreat, and one of the prettiest places in the island. But of all the situations in the island, Ryde appears to me to deserve a preference as a summer residence. It stands on the slope of a dry, gravelly hill, facing the north; immediately opposite Portsmouth; and from the fine open manner in which part of it is built, many of the houses having gardens attached to them, it possesses most of the advantages of a country residence, together with those of a sea bathing place. The neighbourhood is also very beautiful and favourable for exercise. The Isle of Wight thus presents a considerable variety of healthy and beautiful sites, suited to the wants of a large proportion of valetudinarians. The proximity to the metropolis, and the rapid and easy communication recently established by the Southampton railway, add greatly to its conveniences as a residence for invalids.[1]

CLIMATE OF THE SOUTHWESTERN COAST.

The south coast of Devon has a winter temperature nearly two degrees higher than that of the coast of Sussex and Hampshire,

analysis of the late Dr. Marcet, a pint, or sixteen ounces of this water, contains the following ingredients; the specific gravity being 1007.5.

Of carbonic acid gas, three tenths of a cubic inch.		
Sulphat of iron, in the state of crystalised green sulphat,	41 grs.	4
Sulphat of alumine, a quantity of which, if brought to the state of crystalised alum, would amount to . . .	31	6
Sulphat of lime, dried at 160°	10	1
Sulphat of magnesia, or Epsom salts, crystallised . .	3	6
Sulphat of soda, or glauber salt, crystallised . . .	16	0
Muriat of soda, or common salt, crystallised . . .	4	0
Silica	0	7
	107	4

From the resemblance of this spring to a celebrated mineral water in Sweden, Berzelius was induced to examine it. The results of his experiments confirmed the accuracy of Dr. Marcet's analysis. It has been found useful in the cure of agues, in some cases of dyspepsia, and in general relaxation and debility connected with uterine weakness, &c. For a full account of the medical virtues of this spring, I beg to refer to Dr. Lempriere's little work on the subject.* There is a hotel near the spring, and I would advise dyspeptic invalids especially, for whom this water may be prescribed, to drink it at the source.

[1] In terminating my observations on the climate of Undercliff, I must express my obligation to Dr. Martin, the resident physician in the district, for his able assistance. By continuing the series of minute and careful observations, on which he has already been engaged some years, Dr. Martin will soon be enabled to fix the character of the climate of Undercliff.

* Report on the Medicinal Effects of the Aluminous Chalybeate Spring, lately discovered in the Isle of Wight. By William Lempriere, M.D. &c. &c. Second Edition.

and from three to four higher than that of London.[1] The difference is most remarkable during the months of November, December and January; amounting, on the average, in the sheltered places, to five degrees above London. In February, the difference falls to three degrees, and in March and April, the excess of the mean temperature over that of London, does not amount to one degree. It ought also to be remarked, that this difference takes place principally in the *night;* as the difference between the lower extremes of London and the Southwest Coast, is to the difference of the higher extremes as four to three,—a less disproportion, however, than occurs between the South Coast and London. Hence, when compared with the latter, the days are proportionally warmer on the Southwestern than on the Southern Coast; whilst the nights at these places are nearly equal. The range of daily temperature is about the same on the Southwest and South Coasts, although, as has been remarked, less than at London. . As regards the continuance of the same temperature, the Southwestern has a remarkable superiority over the Southern Coast; amounting nearly to three fourths of a degree; which is a very considerable difference, when we reflect that the whole amount of variation of successive days scarcely exceeds three degrees.

Different places on the Southwestern Coast possess these general qualities in a more eminent degree, according as they are more or less sheltered from northerly and easterly winds. Of these, taking them in succession from west to east, Salcombe, Torquay, Dawlish, Exmouth, Salterton, and Sidmouth, deserve to be particularly noticed. But many other sheltered spots may be found along this coast, as, for instance, in the neighbourhood of Plymouth, at Kingswear, near Dartmouth, and other places. But the great fault of most of these situations is, that their climate is too circumscribed to be of much utility to the class of invalids who are in a condition to derive the greatest advantage from a mild climate, I mean those who are capable of taking exercise in the open air. At a very little distance from the coast, several situations may be met with, still more completely protected from northeasterly winds, than most of the places situated immediately on the sea shore. Among these may be mentioned the village of Lympstone, about two miles from Exmouth, and Bishopsteignton, about the same distance from Teignmouth. To this class of situations, the village of Upton also belongs. All these places, while they are sufficiently near the coast

[1] Notwithstanding that public attention has been so long directed towards the climate of Devonshire, it is extraordinary how few are the materials which can be collected with a reference to the subject. It is to be hoped that this may not long continue to afford a ground of complaint. We should think it an object well worth the attention of the scientific institutions of Exeter, Plymouth, Bath, Bristol, &c. Were they to establish a series of simultaneous observations at different parts of the country for a few years only, the character of the climate of the southwestern part of England might be accurately ascertained.

to partake of the mildness of its climate, are beyond the more immediate influence of the sea air, and are more protected from the southerly gales, to which the whole coast is exposed. These circumstances deserve the consideration of the physician, while weighing the comparative merits of the two classes of places as residences for different invalids. The village of Heavitree, close to Exeter, although more inland, has the credit of possessing a mild winter climate. And this may be true, as far as regards the part situated on the southern aspect of the low hill on which the village is built; but the other parts are exposed to the whole range of northeasterly winds.

There are other sheltered spots in the immediate vicinity of Exeter, which would afford mild winter residences for invalids. But it will be found that, as we recede from the coast, the cold, especially during the night, is more intense, and the range of temperature greater. And, independently of this circumstance, the few accommodations to be found at all these places, with the exception perhaps of Heavitree, prevent them from being resorted to at present by invalids, except in a very limited degree.

SALCOMBE.

This small place, (the Montpelier of Huxham,) deserves notice here for its remarkable mildness. Yet, although it is perhaps the warmest spot on the Southwest Coast, its climate is limited to too small a space to admit of Salcombe ever becoming the resort of invalids to any extent.

There is unfortunately here a want of sheltered ground for exercise; and this I hold to be one of the greatest defects in a winter residence, for a large proportion of invalids. It is indeed chiefly for the advantage of exercise in the open air, that they leave the comforts of their own homes. In the immediate vicinity of Salcombe, there are two beautifully situated villas, Woodville and the Moult. At the former, under the shelter of a wooded hill, the American aloe has twice flowered in the open air, and with a degree of luxuriance almost equaling that which it displays in a tropical climate. The orange and lemon tree, also, thrive here, and ripen their fruit in the open air; the only protection they require during the winter, being that afforded by a covering of straw mat. These trees exhibit a degree of luxuriance and vigour, which I have seen in no other part of England, under the same circumstances. The olive tree has also occasionally produced fruit in this place.

TORQUAY.

The general character of the climate of the Southwestern Coast, is soft and humid. Torquay is certainly drier than the other places, and almost entirely free from fogs. This drier state of the atmosphere probably arises, in part from the limestone rocks, which are

confined to the neighbourhood of this place, and partly from its position between two streams, the Dart and the Teign, by which the rain is in some degree attracted. Torquay is in a great measure protected from northeast winds, the great evil of our spring climate. It is likewise well sheltered from the northwest. This protection from winds, extends also over a very considerable tract of country, abounding in every variety of landscape, in which the invalid may find at all times a sheltered spot for exercise either on foot or horseback. The beauty of the country around Torquay, and the extent to which it is sheltered from all winds, is an advantage which it possesses over all the other places in this district, and one of great importance to the invalid. It possesses all the advantages of the southwestern climate in the highest degree.[1]

The village of Tor, situated immediately behind, and on the high ground above Torquay, has been mentioned as a favourable residence for invalids. It is, however, considerably colder, and less protected from northerly winds than the latter place, and is also said to be damper. Just beyond Tor is the little vale of Upton, which affords one of the most eligible situations on this coast for establishing a Madeira village; being protected from southerly as well as northerly winds. Were houses built along the base of the hills, which bound this little vale, and the intervening space entirely laid out in open pleasure grounds for exercise, Upton would, I believe, form one of the most favourable winter residences for invalids in Devonshire.

DAWLISH.

Of the places on this coast, frequented by invalids during the winter, Dawlish appears to me to deserve the preference, after Torquay. Although less dry than the latter place, it is perhaps drier than the other parts of the coast. Dawlish is well protected from northerly winds, and also from the violence of the southwesterly gales. It is less protected from east winds, and this is more especially the case with the part of the town situated near the beach; indeed, this is much exposed to easterly winds. The part more distant from the sea is better protected; and there are also some well sheltered walks in this quarter. But Dawlish is altogether upon a small scale, and its confined situation must, I should think, render the air close and somewhat oppressive to many invalids, in calm, mild weather.

EXMOUTH—SALTERTON.

Part of Exmouth stands high, and is exposed to almost every wind, more especially to the southwesterly gales. The lower parts

[1] For a full and interesting account of the country the reader is referred to the Panorama of Torquay, &c. by Octavian Blewit, Esq.

of the town are protected from these, and, in a considerable degree also, from northerly winds. The situation of this part of the town, with respect to the river, exposes it, however, to occasional damp, as it did formerly to inundations from the sea in severe storms, with high tides. This latter inconvenience has been lately obviated by means of an embankment, which excludes the sea, and has thus allowed about sixty acres of what were formerly banks of mud to be converted into green meadows. There is here also a want of sheltered ground for exercise, and the place altogether does not appear to possess great advantages as a winter residence for delicate invalids, more especially for those labouring under pulmonary affections. Exmouth is, however, a healthy place; and I may remark here, that, notwithstanding the whole of this coast is rather humid, agues are almost unknown, as far as I could learn. A little way in the interior, they are not uncommon. Although Exmouth is not well suited for persons with delicate chests, other invalids often experience great benefit from a residence there, more particularly on the Beacon Hill, the most elevated and finest situation in the place; and which, as some compensation for the buffetings of the southwest gales, commands one of the most magnificent views in Devonshire. Along the southern base of this hill, there is also a road of considerable extent, protected from north and northeast winds, and well suited for exercise during the prevalence of these.

Salterton.—This village, about four miles to the eastward of Exmouth, presents advantages in point of situation which render it preferable to the latter place as a winter abode for the invalid. It stands in a small open valley on the sea shore, well protected from winds,—particularly northerly winds.

SIDMOUTH.

This place is situated on the sea beach, at the mouth of an open valley, through which the little river Sid runs; and would be fully exposed to northerly winds from the mountains, whence this stream takes its rise, but for the profusion of lofty and luxuriant elms and other trees, which shelter it partially in that quarter. Some of the houses at a little distance from the sea-beach are tolerably well protected from northerly winds; whilst Peak Hill and Salcombe Hill give protection in a considerable degree from westerly and easterly winds. Sidmouth seems well calculated for a summer and autumn bathing place; and, in the more sheltered situations mentioned, the invalid may find a suitable abode during the winter. The climate is damp, and in November, is subject to sea-fogs, which is also said to be the case with Exmouth.

In one or other of these places, the invalid may obtain all the benefit which a residence during the winter on the South Coast of Devon affords.

The influence of the southwestern climate on disease may be anticipated, in a great degree, from its physical characters, which

we have shown to be mild but rather humid, consequently soothing but rather relaxing. In one class of complaints, it is, therefore, calculated to prove decidedly beneficial,—in another, of an opposite character, equally injurious.

Pulmonary diseases are those in which the climate has been considered especially beneficial. But as there is considerable variety in the character of the different diseases to which the lungs are liable, as well as in that of the different constitutions in which they occur, so will the benefit to be derived from this climate depend upon its being applied to the proper cases. In chronic inflammatory affections of the throat, trachea and bronchi, attended with a dry cough, or with little expectoration, decided benefit may be expected. But when there exists in such cases a relaxed state of the mucous surfaces with copious expectorations, especially when occurring in a languid and relaxed constitution, the disease is more likely to be aggravated than diminished by a residence on this coast. From this statement will be understood the character of the more serious diseases of the chest, which are likely to be relieved by this climate.

In gastritic dyspepsia, it is serviceable; likewise in dysmenorrhœa, and the various nervous symptoms consequent upon it. On the other hand, this climate certainly exerts an unfavourable influence on all nervous complaints arising from relaxation or want of tone of the nervous system; on persons subject to nervous headaches; and in the purer forms of atonic dyspepsia, more especially when accompanied with a languid, relaxed state of constitution. Indeed, this form of dyspepsia is one of the most common complaints among the inhabitants of the coast; and it frequently happens that persons, who have come from a colder and more bracing part of the country to reside here, suffer much from this disease.

This climate will be found no less unfavourable to persons subject to menorrhagia and leucorrhœa, and in all diseases of the mucous membranes, attended with a relaxed state of the system, or with much discharge from the affected organs. In recommending a residence on this coast to invalids, it is absolutely necessary to attend to these distinctions, respecting the nature of their diseases and the character of their constitutions, otherwise frequent disappointments must be the consequence.

What may be the real estimation in which the climate of Devonshire ought to be held in consumptive complaints, and what may be its absolute effect upon these, I have much difficulty in saying: but this much I may venture to advance, that as the invalid will be exposed to less rigorous cold, and for a shorter season,—will have more hours of fine weather, and, consequently, more exercise in the open air,—he gives himself a better chance by passing the winter here, than in the more northern parts of the island. To compare it, also, in this respect, with the milder climates of the South of Europe, is no easy task. In the south, the invalid has finer days, a drier air, and more constant weather; but the transitions of temperature, though less frequent, are more considerable. In the

nights, I believe, invalids are often exposed to severer cold than here; and this arises partly from the great range of temperature, and partly from the imperfect manner they are protected from the cold of night, by the bad arrangement of the houses, chimnies, &c. To afford an opportunity of judging of the proper value of this last circumstance, I subjoin a comparison of temperature in-doors and out-of-doors, from observations made by the same invalid (a correct and careful observer) at Nice and Torquay.[1]

From the soft nature of the climate of this coast, and the relaxing and enervating effects which a long residence on it is liable to produce on many constitutions, invalids who mean to reside here during several winters, should leave it in the summer, and seek a drier and more bracing air. Such as are unwilling, or unable, to undertake a long journey, should retire to some of the drier and more elevated places at a little distance from the coast. Among these, Chudleigh deserves to be particularly noticed. It is finely situated on a ridge of limestone rock, beyond the range of the Haldon hills, and about five miles from the coast, and is esteemed one of the driest and most healthy sites in this part of the country. A more inland situation, and, from its vicinity to Dartmoor, possessing a still more bracing air than Chudleigh, is Moreton Hamstead; and this place, if suitable accommodations were to be found, would be a good summer quarter for invalids under the circumstances alluded to. Ilfracombe and Linton, on the northern coast of Devon, and other places in that beautiful and romantic region, afford excellent summer residences for some invalids. One objection to such a migration, which formerly existed in the badness of the roads, is now remedied by the formation of a new level line of road from Exeter to Barnstaple and Ilfracombe.

There is as marked a difference between the summer climate of North and South Devon, as there is between the cast of their scenery; the air of the former being keen and bracing, and its features romantic and picturesque, while in the latter, the rich softness of the landscape harmonises with the soft and soothing qualities of the climate.

CLIMATE OF CORNWALL.

The climate of the South Coast of Cornwall, in its general characters, as also in its influence on disease, resembles closely that of the South Coast of Devon, and has also long been resorted to by pulmonary invalids.

PENZANCE.

Penzance, as the chief residence of invalids in Cornwall during the winter, claims a particular notice; it is situated on the shore of the beautiful *Mounts-Bay*, about ten miles from the extreme western

[1] Appendix.

point of England, termed the Land's-end. Although situated on the shore of a bay surrounded by high land, Penzance can hardly be said to be sheltered from any wind; it therefore exhibits, in its meteorological results, the common features of the district in which it lies. Dr. Forbes was the first to point out the character of this climate; and it would have spared me much trouble and time, had I had the facility afforded me, in inquiring into other climates, for which we are indebted to Dr. Forbes in regard to this. A few such analyses, as his "Observations" present, would soon make the problem of the climate of this country, as regards all useful purposes, cease to be a desideratum.[1]

The mean annual temperature of Penzance is 52°.16, being only 1°.77 above that of London, But the temperature is very differently distributed over the year at the two places. Although Penzance is only a degree and a half warmer than London for the whole year, it is 5½° warmer in winter; 2° colder in summer; scarcely 1° warmer in the spring; and only about 2½° warmer in the autumn.

As regards the temperature of the different months, relatively with London, the greatest difference occurs in the following order, —December, January, November and February. In April, the difference is reduced to half a degree; in May, Penzance is 1° and in July, 2½° colder than in London; and the temperature does not again rise above that of London until the month of October. So that were one to give a graphical term of expression for the progression of the mean temperature of the two places through the year, that of London would more resemble an ellipsis, and that of Penzance the more equal figure of a circle. This will be aptly illustrated by observing, that the difference between the mean temperature of the warmest and coldest months in London is 26°, while at Penzance it is only 18°; and that, whilst in London the mean difference of the temperature of successive months is 4°.36, it is only 3° at Penzance. On examining the progression of temperature for the twenty-four hours at these two places, we find that, in winter, it is during the night that the greater part of this difference of temperature occurs; Penzance being nearly, on an average, six degrees and a half warmer than London during the night; and only little more than three degrees warmer during the day. But this equal distribution of heat throughout the year at Penzance, which we have compared so advantageously with that of London, is still more striking when compared with that of the South of Europe. Madeira and the Azores are the only climates which we have examined that are superior to Penzance in this quality.

The same remarkable equality in the distribution of temperature during the year at Penzance, holds equally true for the day;[2] and,

[1] Observations on the Climate of Penzance and the District of the Land's-end. By John Forbes, M. D.

[2] Thus in the winter of 1827–8, the mean daily range at Penzance was 7°.50; at London, at Gosport, Torquay, and Nice, it was 12°, 10°, 11°, and 11° respectively.

indeed, I may observe generally, that the progression of temperature for the year and the day, are faithful types of each other. I find, on comparing the months for a series of years, that the daily range at Penzance is little more than half that of the South of Europe; but in this quality, it also falls short of Madeira. And here is a proper opportunity of remarking, that although in mean temperature for the whole twenty-four hours, Penzance is considerably lower than that of the South of Europe, yet that during the night, through the winter, its extreme minimum temperature seldom is so low. It is during the day, only, that the South of Europe, as far as regards temperature simply, possesses a superiority. Thus, in winter, at seven o'clock in the morning, there is little difference between Rome and Penzance, but at two o'clock in the afternoon, there is nearly the difference of 7°. Indeed the whole advantage of Penzance, as compared with the South of Europe, appears to occur in the winter and during the night.

In the duration of the same temperature, as shown by the mean variation of successive days, the climate of Penzance excels all the northern climates, and nearly equals Rome and Nice in this respect.

As will have been observed, Penzance loses, in the spring, its superiority of climate. In April and May, it appears decidedly inferior to the more sheltered spots on the South Coast of Devon, and to Undercliff, and very much so to the Southwest of France. For instance, at Pau, the mean temperature during the winter is nearly 3° below that of Penzance, while during the spring it is 5° above it.

In the other elements of climate, this district has less peculiar advantages. There falls at Penzance about twice as much rain as at London. The number of days on which rain falls, does not, however, seem in proportion to the quantity of fluid precipitated. Mr. Giddy makes the average number of wet days, during seven years, 177.3, and he particularly states, that under this head he comprehends "rainy, showery, and misty days,—in short, all days on which there is any fall whatever, even a slight shower." The average number of wet days at London is 178, being almost precisely the same as that recorded by Mr. Giddy for Penzance. Of the much greater humidity of the atmosphere in Cornwall, however, there can be no doubt. The testimony of Dr. Forbes, who had ample means of forming a correct judgment, is very strong on this point. Another of the disadvantages of the climate of the southwestern extremity of our island, is its liability to violent and frequent gales of wind, and of this disadvantage Penzance appears to partake largely.

The effects of the southerly winds is to raise the temperature greatly, especially during the night. "During the prevalence of the south or southwest gales," says Dr. Forbes, "there is very little difference of temperature between the day and night, as proved by the register thermometer. Sometimes there is no difference whatever; and very commonly the minimum of the night is not more

than 3° or 4° below the maximum of the day. This shows how very completely the influence of the sun is excluded by the dense vapour with which the air is loaded; and during these *our moist siroccos*, we may say, without any metaphor, that we are breathing the breezes of a climate milder than our own. When these south and southwest winds, so prevalent in winter, are very gentle, the sky is often clear for many days together. On these occasions, the warmth and softness of the air are truly delightful; and when taken in conjunction with the beautiful scenery around Penzance,—the calm blue bay,—the gay green meadows,—the myrtles, and other exotic plants common in our shrubberies,—one is almost tempted to forget that it is winter landscape that he is contemplating."[1]

It is principally in consequence of its exposure to the northeast during the spring months, that Penzance is absolutely colder than the coast of Devonshire, or even the neighbourhood of Bristol, during this season. This circumstance of exposure to, or shelter from cold winds, constitutes the principal cause of the difference of different places, in the same line of climate, in point of warmth as experienced by man; for the influence of temperature on the living body is indicated much more accurately by our sensation than by the thermometer. Unless, therefore, the indications of the thermometer are corrected by observing the winds, we shall form very erroneous ideas of the climate of many places.

The only other place in this district that deserves particular notice is *Falmouth*, including the neighbouring village of Flushing. The winter temperature of Falmouth (which lies about thirty miles to the east of Penzance) is a trifle lower than that of the latter place, but the general qualities of its climate are nearly the same. In one respect, indeed, the village of Flushing, which is situated on the east side of the river Fal, (Falmouth being on the west,) has the advantage of Penzance, being much better sheltered from the east winds by the hills which rise immediately above it, and if it possessed good accommodations, erected in the best situation, this village would form a residence for invalids, during the spring months, superior to Penzance. Like many other places, however, favourably circumstanced as to shelter by hills, the local climate of Flushing is much too limited, from a deficiency of protected ground for exercise.

The disadvantages which attach to the climate of the Land's-end generally, in point of humidity and exposure to winds, are such, as in a great measure to neutralise the superiority which it possesses over the other climates of England in mildness and equability of temperature. In its general characters, this climate resembles so closely that of the south coast of Devonshire, that the remarks already made on the influence of the latter on disease, apply nearly to it. The climate of the southwest of Cornwall is still more relax-

[1] Op. citat.

ing than that of the south of Devon. Disorders, commonly termed nervous and stomach complaints, are unusually frequent among the lower classes. Diseases of the osseous system,—of the spine and large joints (mostly of a scrofulous character,) are also very common. Although not a strong race of people, the inhabitants of this district are, however, long lived.

Regarding the influence of this climate on consumption, we have the testimony of Dr. Forbes, founded on ample experience, that little is to be expected from it; but we ought to admit, at the same time, that, in this respect, it but shares the opprobrium with every other climate, in the advanced stages of that disease. "In a good many cases, however, of chronic bronchitis, simulating phthisis, the health was greatly improved, and in some it was completely restored, from a state of great debility and seeming danger. In a few cases, also, of young persons who accompanied their diseased relatives, and in whom the hereditary predisposition was strongly marked, if there was not already evidence of nascent tubercles,—a great and striking improvement in the general health and strength followed within a short period after their arrival, and seemed fairly attributable to the combined influence of change of air, scene and habits."[1]

The consumptive cases in which the soft humid atmosphere of this place is likely to prove beneficial, are those in which the disease is accompanied with an irritated state of the mucous membrane of the lungs, producing a dry cough, or one with little expectoration.

In idiopathic tracheal and bronchial diseases of the same character, whether complicated with asthma, or otherwise, and also in certain pure cases of the latter disease, it is likely to be very beneficial. When, on the contrary, there exists a relaxed state of the system, or a disposition to copious secretion from the bronchial membrane, whether idiopathic, or symptomatic of a tuberculous state of the lungs, or where hæmoptysis has occurred, I believe the climate of the Land's-end will generally prove injurious.

As a summer residence for invalids, and also as a residence during the whole year, the district of the Land's-end is, perhaps, equal to the coast of Devonshire. In the winter, however, and still more in the spring, the latter will, I believe, in most cases deserve a preference. If Penzance is somewhat warmer and more equable in its temperature, it is more humid and more exposed to storms during the winter, while it is rather colder, and less protected from the northeast winds during the spring. Aged invalids, with whom, in general, a soft climate agrees, and to whom even a moderate degree of humidity is not objectionable, might more particularly derive benefit by residing during the whole year at Penzance. The great mildness of the winter would enable them to be much in the open air, and they would have less to dread from the coldness of the nights than in any other part of England.

[1] Dr. Forbes's translation of Laennec's Treatise on Diseases of the Chest. Note by translator, 3d Edit. p. 73.

The country around Penzance is healthy, and affords a great variety of excellent rides and drives. Accommodations for invalids are numerous; and being a sea-port, the place affords convenience for water exercise during the summer. Invalids who have passed the winter at Penzance, and whose complaints are likely to be aggravated by the spring winds, might remove to Flushing or Fowey at that season; and some might even go to Clifton with advantage.[1]

WEST OF ENGLAND.

The mean temperature of the *Western Group* of climates during the winter is rather lower than that of the South Coast, but in March and April rises a little higher. Bath and Bristol, during the months of November and December, are nearly 3° warmer than London. In January and February they do not average 1° warmer; in March, Bath and Cheltenham are rather colder than London, but Bristol continues from one to two degrees warmer during March as well as April. On comparing Penzance with this tract, we find only 1° of difference in the mean annual temperature. In winter, however, Penzance is 4° warmer; but in the spring and summer it is somewhat colder. The distribution of heat throughout the year, is more unequal in this district than in the others; the difference of the warmest and coldest months being 28°, while it is only 26° at London, 21° at Gosport, 20° at Torquay, and 18° at Penzance. We find, also, that the range of temperature for the day and the month is considerably more than on the Southern and Southwestern coasts, and the Land's-end; the minimum term of temperature being from 3° to 5°, and even to 6° lower than at some of these places. In steadiness of temperature from day to day, it nearly corresponds with the South Coast, but is inferior to that of South-Devon, and considerably so to Penzance.

CLIFTON.

In this tract of country the vale of Bristol appears to be the mildest and most sheltered spot. The climate, during the winter, is mitigated by the vicinity of the great western ocean, while its land-locked situation protects it from the winds of that quarter. To those from the southeast it is fully open. The fall of rain in this district is less than from its western position might have been expected. The mountain ranges which flank the country bordering the Bristol channel,—those of Wales on the north, and those of

[1] For much interesting information respecting the natural history and antiquities of this district, I refer the reader to Dr. Forbes's tract, already referred to, and to his more recent and admirable essay on the *Medical Topography of the Lands-end*, in the Provincial Medical Transactions, vol. ii.; also to an amusing little work, entitled, "*A Guide to Penzance and the Lands-end*," written, it is said, by an eminent physician now resident in London.

Cornwall and Devonshire on the south, by modifying the course of the clouds from the Atlantic, appear to diminish the fall of rain in the intervening space. There is reason to believe also that this is even less at Bristol than the average of the surrounding district, a circumstance which may be accounted for, partly by its protection from westerly winds, and partly from its position with respect to the course of the Severn and its extensive estuary; from the nearest part of which Bristol is distant about five miles, and is, at the same time, completely shut out from it by the intervening high land. But however the circumstance may be explained, the fall of rain is absolutely less here than in Devonshire and Cornwall, and much the same as that on the south coast.[1]

The surrounding hills are composed chiefly of limestone, and this circumstance tends further to diminish the humidity of the atmosphere.

Clifton and its immediate neighbourhood, afford a considerable variety in point of shelter and elevation of site. The town is built on the southern declivity of a hill, at the bottom of which is situated the *Bristol Hotwells*. Here, and in the lower parts of Clifton, the most sheltered situations are to be found. And, accordingly, consumptive and other delicate invalids should seek the more protected spots in this quarter during the winter: while those requiring less shelter may reside on the higher but still sheltered parts of Clifton. The crescentic forms of the buildings in this place are singularly well adapted to the situation, as they afford protection to so many terraces, well suited for exercise during the prevalence of northerly winds. In the lower grounds there are also some sheltered walks, and towards the park several rides and foot paths which are tolerably defended from northerly winds. But, in this respect, Clifton, during the cold season, does not afford great variety. When, however, the weather is sufficiently mild to admit of the invalid going to some little distance from home, few places present more beauty or variety. The whole parish of Clifton is indeed well described by the late Dr. Chisholm, as "a beautiful and romantic assemblage of woods, rock, water, pasture and down. It seems indeed singularly well adapted to the maintenance of health; the soil resting on immense beds of limestone rock, exposed to the southerly and westerly winds, for nearly three fourths of the year; with an atmosphere elastic, vivifying—not humid."[2] The surrounding country is healthy, being free

[1] The average fall of rain for six years at Bristol, as given by Dr. Cole, is 31 inches. Penzance 44. London 25. There is reason to believe, however, that 31 inches is above the average fall. Dr. Carrick makes the mean of ten years, 1801 to 1810, only 24 inches; and the accuracy of Dr. Carrick's observation is supported by those of Col. Cupper, which give a mean of 23.76 for eight years (1800 to 1807) at Cardiff.—*See his Meteorological and Miscellaneous Tracts.*

[2] See an excellent paper, by this amiable and enlightened physician, on the Statistical Pathology of Bristol and of Clifton, in the Ed. Med. and Surg. Journal, vol. xiii. 1817.

from every thing like marsh. Dr. C. informs us that in the list of diseases admitted, during four years, into the Clifton dispensary, only one case of intermittent fever appeared, and that one was from the fenny district near Congresbury, about twelve miles to the westward of Clifton.

As far, then, as we are enabled to judge respecting this climate, from the obvious local advantages which it possesses, in point of shelter and aspect, and from the evidence afforded by meteorological registers, the vicinity of Bristol and Clifton appears to be the mildest and driest climate in the west of England, and consequently the best winter residence, in that part of the country, for invalids.

Compared with the South and Southwest Coasts, the spring is the period of the year during which this climate appears to the greatest advantage. This season, as we have already seen, is warmer here than on the South Coast, (with the exception of Undercliff,) whilst it is equal to that of the warmer parts of the Southwest Coast. When the climate of Clifton is compared more closely with that of Devonshire, it may be characterised as drier and more bracing than the latter, and as more exciting to most consumptive patients, and to those labouring under irritable affections of the bronchial membrane. For such cases, the softer and more humid air of Devon will be found more soothing; while for invalids, whose constitutions have suffered from long continued derangement of the digestive organs, or a congested state of the mucous membranes with copious secretion, and also for young scrofulous persons, and those of relaxed habits of body generally, Clifton will prove a preferable climate. And this gives me an opportunity of repeating, that in comparing climates together, as regards their influence on diseases, the constitution of the patient, and the particular nature of the disease, must be taken fully into consideration in deciding on their respective merits in each individual case.

But the advantages of Clifton, as a residence for the invalid, are not limited to the winter; it affords also a very favourable summer climate. Indeed, the higher situations on Clifton Hill are as eligible during the latter season, as the lower and more sheltered parts are during the former. A more complete change of air than this, however, will in general be advisable, when there are not material objections to traveling. The interior parts of the same district, as about Cheltenham, and, still better, the hills of Malvern, one of the coolest and most healthy summer residences in England, will suit many invalids. For young persons of a scrofulous constitution, the summer climate of Malvern is admirably suited. Others may pass the summer with more benefit among the mountains of Wales; and in cases in which a course of goat's whey promises advantage, this will be the preferable plan. Abergavenny is, I believe, the most esteemed station for this purpose. Several healthy and convenient places present themselves on the opposite coast of Wales, as at Aberystwith, Tenby, Barmouth, &c., which form good resi-

dences during the latter part of summer and the autumn, more especially when sea-air or sea-bathing is indicated. These places, from the accommodation of steam vessels, may be reached by a voyage of a few hours; a circumstance of material consequence to the invalid unable to bear the fatigue of a journey by land.

In its local advantages and geographical position, therefore, Clifton affords peculiar advantages as a residence for a large class of invalids. Within its own limits it affords a sheltered winter and spring, and an open airy summer and autumn residence; whilst it is surrounded by numerous places of convenient and agreeable resort in the fine season, suited to the various classes of persons who may seek its shelter during the winter.

Bristol Hot-well.—I must not quit Bristol without some notice of the once celebrated spring which formerly, indeed, was the chief object of attraction at this place for invalids. The virtues of this source were then as much overrated as they appear now to be underrated. Yet I believe many of the valetudinarians, who frequent Clifton on account of its climate, might derive benefit from the use of this water.

According to Dr. Carrick's analysis, made in 1797, it appears to be a very pure water, having at its natural temperature of 76°, a specific gravity of only 1.00077. It contains a very small proportion of lime, soda, and magnesia, in combination with the carbonic, sulphuric, and muriatic acids; but a considerable proportion of free carbonic acid, and a little atmospheric air. The presence of the fixed air, together with its temperature, renders this water grateful to the stomachs of most persons. Dr. Saunders has well characterised it as a pure, warm, slightly acidulated water; and even as such it will, I have no doubt, be found useful in many cases of dyspepsia. Like some other natural warm waters, it is said to be very efficacious in allaying the thirst which accompanies the paroxysms of symptomatic fever; and Dr. Riley, of Clifton, informs me that he has found it of essential service in several cases of diabetes. But it is chiefly in a deranged state of the digestive organs that it is indicated. In the nervous forms of dyspepsia, when the stomach is in a languid state, and does not tolerate cold fluids, it will prove useful. During the spring, several tumblers drunk before breakfast, with exercise on foot or on horseback, according to circumstances, will, in many cases, greatly favour the effects of the climate, in restoring the energy of the digestive organs, and thereby improving the general health. It may be advantageously used also as a common drink at meals. But I venture these opinions, rather on the experience of others than my own.

ISLAND OF BUTE.

This island lies in the Frith of Clyde, about eighteen miles below Greenock, and is almost surrounded by the lofty hills of the opposite coast. It is eighteen miles in length from east to west, and from four

to six miles in breadth. The highest parts of it are not more than 140 feet above the level of the sea.

The temperature of Bute never falls low during winter, nor rises high in summer, so that its yearly range is comparatively limited—under 40°, which is at least 15° less than what it is at Glasgow. The temperature will more frequently rise above 75° at Glasgow, than above 70° at Rothsay in Bute; and oftener sink below 20° at Glasgow, than below 30° at Rothsay.

Snow, when it does chance to fall, seldom lies longer than a few hours. During severe and long-continued frost on the mainland, and when the surrounding hills there are for many weeks covered with snow, a little may be seen on the higher parts of Bute; but even then the temperature on the lower grounds is rarely under 28° during the night, and 34° during the day. In the whole course of twelve years of the most careful and accurate *hourly* observations, the thermometer never fell lower in Bute than 20° above zero of Fahrenheit's scale, and on three occasions only was it nearly so low. On one of these the thermometer in the Botanic Gardens at Glasgow, indicated 5° below zero. This was indeed the greatest difference observed during these twelve years; but in very severe frost the difference was often from 10 to 15 degrees. In ordinary weather there is no marked difference of temperature; but in very hot weather, the thermometer in Bute does not rise so high by several degrees as on the mainland.

Every part of Bute is not equally sheltered and mild during winter. The eastern is much milder than the northern coast, owing to its being in some measure protected from the influence of the north wind.

The climate of this island may be characterised as mild and equable but rather humid. It resembles in character that of the southwest of England, and France, and of the Channel Islands, though considerably less warm than any of these. As a winter residence for invalids, it holds out considerable advantages to that class only for whom a soft, equable, but rather humid atmosphere is indicated.

The observations which have been made on the character of the diseases benefited by the climates alluded to, apply to that of Bute.[1]

COVE.

Cork Harbour, on the southern shore of Ireland, is an ovoid

[1] We are indebted to Mr. Thom for the most complete account of the climate of Bute that was perhaps ever kept of any place. In the Appendix will be found, a meteorological table, the results of twelve years' hourly observations, which Mr. Thom had the kindness to draw up at my request. It is to be hoped that he may publish the whole of the data from which this table is calculated, as they constitute the most complete series of meteorological observations perhaps ever made, and at this moment, when the attention of men of science is particularly directed to the subject of meteorology, their publication is most desirable.

basin, above seven miles by five, surrounded by the mainland. Within, and on the northern side of this harbour, lies the island of Cove; the extreme length of which, from east to west, is seven, and its greatest breadth, three and a half miles. The island consists of two hills, from two to three hundred feet high, running from east to west; the northern ridge forming the chief body of the island. The town of Cove, containing about eight thousand inhabitants, is built on the southern acclivity of the southern hill. It consists of terraces rising from within a few feet of elevation above water mark to a considerable height, and in a crescentic form, facing the south. From its position and configuration, the town is sheltered from northern winds, on the one hand, and, on the other, is open to the full influence of the sun.

The accommodations for invalids are good, and the walks and drives well sheltered. The facilities of intercourse between Cove and other places are frequent, and are daily increasing.

The following observations, by Dr. Scott, relate to the lower part of the town of Cove.

The mean annual temperature, deduced from the mean observations of the three years from September, 1834, to August, 1837, and made up of the mean maximum 56°.7, and mean minimum 46°.5, amounts to 51°.6. The mean dew-point 46°. The fall of rain 33.299 inches, and the evaporation, calculated from the mean temperature and dew-point, about 25.643 inches.

Fall of rain in winter 10.565 inches, and number of rainy days 35. In spring, the fall is 4.06, and the number of rainy days 28.

The number of days of frost and snow, in winter and spring, is very inconsiderable. Snow seldom lies longer than a few hours.

The duration of each wind, during the three years, was:—from the south, 96 days; southwest, 222; west, 159; northwest, 213; north, 132; northeast, 84; east, 78; and southeast, 111.[1]

From these observations, and the comparisons given in the Tables on English climates, Cove appears to be one of the mildest climates in Great Britain; being inferior in point of temperature to Penzance only, during the winter months, and to the same place and Torquay only during the spring. In point of dryness, Cove does not stand so high in the table of comparison. The winter is, comparatively with the other places, the season during which the greatest quantity of rain falls.

In its general characters of climate, and the influence of this on disease, Cove corresponds with the southwest of England, and other similar climates.

The subjoined tables exhibit the temperature, the fall of rain, and the number of rainy days during the winter and spring, at the principal places in Britain resorted to by invalids.

[1] Dr. Scott, on the Medical Topography of Cove.—*Dublin Journal of Medical Science*, vol. xiii. To this elaborate and excellent paper I am indebted for the information contained in the above article on Cove.

COMPARATIVE TEMPERATURE OF PLACES TAKEN BY REGISTER THERMOMETERS.

Places.	Mean Temp. of Winter	Spring	Mean of the two seasons	Number of years' Observation from which the Means are taken.
London	39.12	48.76	43.94	Ninetcen years.
Hastings	40.11	45.77	42.94	For winter, five years, including severe winter of 1837–38; for spring, four years.
Undercliff	42.52	48.83	45.67	For winter, six years, including severe winter of 1829–30. Spring, two years.
Torquay	39.83	50.83	45.33	Two years, including severe winter of 1829–30.
Penzance	44.03	49.63	46.83	Ten years.
Cove . . .	43.90	49.43	46.66	Three years.
Bute . . .	39.62	46.66	43.13	Nineteen years.

COMPARATIVE QUANTITIES OF RAIN CALCULATED IN INCHES.

Places.	Mean quantity for Winter.	Spring.	No. of rainy days. Winter.	Spring.	Number of years' observation from which the Means are taken.*
London	5.85	4.80	48.0	43.0	Twenty years.
Hastings	7.44	3.86	38.2	27.2	For winter and spring, 3 years, including the rainy seasons, 1838-9, 1839-40.
Undercliff	6.17	3.83	43.0	19.5	Three years, including the rainy seasons, 1838–9, 1839–40.
Penzance	12.64	9.35	50.7	40.6	Twelve years.
Cove . . .	10.565	4.06	35.0	28.0	Three years.
Bute . . .	10.17	7.21	44.7	32.5	Nineteen years.

* The number of years' observations, from which the number of rainy days is deduced for London and Undercliff, is respectively ten and two. The number of years for the other places is as in the Table.

In bringing to a conclusion this brief account of the warmer situations in our own country, it may be expected that I should apply the preceding observations on the physical characters of their climates, to the object of our researches, and say, what are the advantages which these situations hold out generally to invalids, and what are the diseases in which they are respectively beneficial.

The whole of these places, as we have seen, are considerably warmer during the winter and spring than England generally, and very much warmer than the colder parts of it. Indeed, as I have shown, and as a reference to the tables in the Appendix will further prove, there exists as much difference in regard to temperature, and its distribution between the northern and southern parts of England, as between the latter and the south of Europe. Now as the influence of temperature on the living body is, in a great degree, relative, an inhabitant of one of the coldest parts of this country would, it is reasonable to believe, feel the influence of the climate of the south of England (as far, at least, as regards temperature) as much as an inhabitant of the latter would that of the south of Europe.[1] An invalid, therefore, from Scotland, or the north of England, will find, in the places above mentioned, a climate, compared with his own, sufficiently mild to produce a beneficial influence on his health. Besides this, his opportunities of taking exercise in the open air will be much more frequent, and being exposed to a degree of cold less severe and of shorter continuance, he will avoid a constantly recurring cause of relapse.

But it must be kept in mind, as has been before observed, that there are other circumstances connected with the adaptation of climate to disease which require attention, as well as temperature. The particular nature of the disease and of the patient's constitution, and the character of the climate most suitable for these, will naturally be the first object of the physician's consideration; but the nature of the climate in which the invalid has lived, ought also to be taken into account. This last circumstance, namely, the comparative influence of any particular climate on different individuals, depending on the nature of that which they previously inhabited, has not, I believe, been sufficiently attended to: it de-

[1] The influence of relative temperature on organic life might be aptly illustrated by a reference to its very remarkable effects on plants; and the influence of warmth, whether natural or artificial, in exciting or accelerating the vegetation of these, affords matter of reflection to the physician in estimating the effects of climate on man. It is, I believe, a general practice with gardeners in respect to plants, which they wish to force rapidly in the hot house, to keep them previously in as cold a temperature as they will bear. And it has been often proved, that a vine, accustomed to the temperature of the open air, will vegetate in winter, if transferred to the hot house, while a plant from the same stock, accustomed to the stove, will remain without any sign of budding. See Mr. Knight's Observations on the Method of Producing New and Early Fruit.—*Transactions of the Horticultural Society of London*, vol. i.

serves, however, the especial consideration of physicians when selecting a climate for their patients.

With respect to the merits of the milder parts of England in their influence on disease, I have already made a few remarks while treating of particular places. As regards consumptive invalids, for whom climate has been looked to as the great resource, I beg to refer the reader to the article on consumption.

There is no one of the English climates, as far, at least, as our present knowledge of them extends, so much superior to the others, as to give it a claim to a decided preference in consumptive diseases. The selection must, therefore, depend upon the nature of the individual's constitution, and the character of disease. In cases in which a soft and rather humid air is known to agree, the coast deserves the preference; and at the more sheltered parts of the coast of Devon, as Torquay, and at Penzance, the generality of patients labouring under confirmed pulmonary disease, will find an air more soothing to the respiratory organs than at any other place frequented by invalids in our island. For invalids labouring under a relaxed state of the bronchial membrane, or of the system generally, or where a strong disposition to hæmoptysis has shown itself, the drier and more bracing air of Clifton will agree better; and Undercliff will prove a still more favourable residence. The climate of Hastings may be considered as somewhat intermediate between that of Devonshire and Clifton; less warm, but also less relaxing than the former, it is about the same temperature, but less dry and bracing than the latter, and it is inferior to it as a spring climate. The air of Hastings, as has been already remarked, is also more essentially a sea-air than that of any of these places; a circumstance which will have its due weight with the physician, when deciding upon a climate for his patient.[1]

On the other diseases of the chest, climate exerts a very beneficial influence. In the chronic inflammatory affections of the throat, trachea and bronchi, of the dry, irritable kind, or accompanied with little secretion or expectoration, the coast of Devonshire affords a very favourable climate; likewise in dysmennorhœa, and in dry irritable cutaneous diseases. In diseases of the bronchial membrane, on the other hand, which are attended with copious expectoration, or when there is a greatly relaxed state of the mucous membrane of the chest, with atonic dyspepsia, the climate of the southwest of England is unfavourable; as it is in uterine disorders attended with copious discharges; in menorrhagia, and in all diseases accompanied with a relaxed state of the system generally. It is difficult to find any place in our island well suited during the whole of the cold season, to that numerous class of bronchial diseases, where there is a greatly relaxed state of the mucous membranes, and yet a constant disposition to a more active degree of inflammatory disease. Undercliff will be found one of the best

[1] See article on consumption.

climates for such patients, and Clifton also is a good climate. Brighton is a very favourable residence during the autumn and part of the winter, but after the month of February it is equally unfavourable. Persons labouring under bronchial disease in its less severe forms, who cannot absent themselves from London during the whole season, might pass the autumn at Brighton, remain in town during the winter, and go to Undercliff or Clifton for the spring months; or should this be inconvenient, Chelsea, Brompton, and Kensington, afford sheltered spring situations.

In the disordered states of the digestive organs, which not unfrequently lead to consumption, and in broken down constitutions, the genial influence of a mild climate is one of the most powerful means of relief which we possess. In those cases in which, from a long deranged state of stomach, a sympathetic irritation has been excited in the bronchial membrane, and the person is liable to attacks of catarrh every spring, or is subject to habitual cough, greatly aggravated during that season, such a change is peculiarly beneficial. No class of invalids is, indeed, more susceptible of cold, or suffer more from it than dyspeptics, more especially nervous dyspeptics. But a low degree of temperature is not the only condition of the atmosphere which disagrees with persons suffering from stomach complaints. There are other circumstances in the nature of a climate, cognizable rather by their effects, than by the appreciable physical qualities of the air, which exert a powerful influence on their sensitive constitutions. Different forms of this disease also derive benefit from climates of a different character. With persons labouring under gastritic dyspepsia, the climate of Devonshire will agree, while it will decidedly disagree with those suffering from the atonic form of the disease.[1] In proportion, therefore, as the one or other of these conditions predominates, will this climate prove beneficial or the reverse; but I should scarcely consider a long residence in it advisable in any form of dyspepsia. Persons who have lived in a drier and more bracing air become, after a short residence on this coast, very sensible of the enervating and debilitating influence of the climate on their digestive organs. They feel a sense of distention or oppression in the region of the stomach, with a torpor of the whole system, after meals, indicative of laborious digestion. In the nervous forms of dyspepsia, Clifton will prove a much more favourable residence than any part of Devonshire. Brighton, during the autumn and greater part of the winter, agrees admirably with this class of dyspeptics in general.

Other situations are, no doubt, to be found in our island, besides those which I have noticed, capable of affording a favourable retreat to the invalid during our inclement season; but I have thought it necessary to notice those places only, with the climates of which we are best acquainted.

It is probable, that some may find my distinciions of climate too

[1] See article on disorders of the digestive organs.

minute and particular, and my directions not sufficiently positive and absolute. To such I beg to observe, that I have drawn no distinctions for which I have not data; and that one of the principal objects of the second part of this work is to call the attention of the profession to these distinctions, the importance of which, in a remedial point of view, is far greater than is generally believed. Where my experience has allowed, I have pointed out the use and application of these distinctions; but when this has not been the case, I have preferred to leave the application of them to future and more extensive observation; lest, by going beyond what my premises justify, I might, by a false conclusion, destroy the value and importance of what I know to be true.

Summer Residences.—After this survey of the best winter climates in England, it may be expected that we should take some notice of our more salubrious summer residences. On this subject, however, it is not necessary to go into detail, as there is no lack of healthy situations to which our invalids may repair with advantage during this season. In the selection of a summer, as of a winter residence, the same circumstances require attention, both as regards the character of the climate and the nature of the invalid's disease. Even during this season, the milder and more sheltered situations must be chosen for delicate and very sensitive invalids; while for the relaxed and enervated, and those possessing less sensibility, the bracing air of the higher and drier districts will prove more suitable. To a large class of invalids our sea-side watering places offer a variety of excellent situations; and for those cases in which sea-bathing is proper, they deserve a preference over the interior, especially during the latter part of the summer and autumn. Several of our inland watering places, independently of the advantages to be obtained, in many cases, from the use of their mineral waters, afford good summer climates; and, indeed, some of them, more on this account than any other, have become places of fashionable resort. Among these we may mention Malvern, Cheltenham, Leamington, Tunbridge Wells, Matlock, &c. In general it will be advantageous to invalids who have resided during the summer at any of those places, to pass the autumn by the sea-side, as at some of the driest places on the south, or south-east coast. In the greater number of cases in which traveling is borne without inconvenience, several changes, or a succession of short journeys, will be more beneficial to most invalids than a residence during the whole season in any one place. It is remarkable how such repeated changes, with frequent gentle exercise, especially on horseback, renovate the constitution enfeebled by disease, enable it to overcome many chronic affections, and contribute to the restoration of permanent health. But we shall have occasion to recur to this subject.

THE CHANNEL ISLANDS.

These islands are occasionally resorted to by invalids from this country, and, when the cases are properly selected, often with advantage.

Jersey is the largest of the Channel Islands, and that most frequented by invalids. It stretches from east to west, and averages nine miles in length, by five in breadth. From the north coast, which is steep and craggy, the island slopes to the south. It consists almost entirely of hill and dale, and abounds in wood and verdure. The ground is thickly hedged, and the pathways are bordered by double files of trees, planted on high embankments, interrupting the view from the highest carriage. The general character of the soil of Jersey is a deep, sandy loam, with a subsoil of red loam or clay, based on granite rock, or schistose formations. Generally speaking, the water of the higher situations is *soft;* of the lower, *hard*.

The following table, from Dr. Hooper's work,[1] shows the distribution of temperature throughout the year.

TABLE,

Showing the mean temperature of the months, seasons, and whole year; averaged on the years 1831–32–33–34 *and* 35.

March,	45.75			
April,	50.09	Spring,	50.97	
May,	57.08			
June,	61.31			
July,	63.50	Summer,	62.84	
August,	63.72			53.06
September,	59.82			
October,	55.65	Autumn,	54.63	
November,	48.42			
December,	45.27			
January,	41.58	Winter,	43.82	
February,	44.62			

From its small size, and from its situation in the current of the channel, Jersey is freely exposed to all winds. High winds are very prevalent. A perfectly calm day, even in summer, is rare; and, generally speaking, says Dr. Scholefield, even the finest weather may be called "blowy."[2] The western breezes, according to Dr. Hooper, occupy two thirds of the year. The northeast wind often reigns continuously for a considerable time, particularly in

[1] Observations on the Topography, Climate, and Prevalent Diseases of the Island of Jersey. By George S. Hooper, M. D., London, 1837.

[2] Inglis's Account of the Channel Islands. Appendix by Dr. Scholefield.

the spring months, and then it is severely felt by the delicate invalid.

The actual fall of rain in Jersey does not appear to have been measured. Dr. Hooper states, that the number of rainy days falls short of that of the south and southwestern coasts of England; but he is inclined to think, that if the quantity of rain was estimated by a rain gauge, it would be found greater at Jersey, as the showers there are generally copious and of long duration. In addition to the quantity of rain which falls, the thickly wooded state of the island, and the imperfect drainage, contribute to the extreme humidity of Jersey.

"It may be said," observes Dr. Hooper, "that the island of Jersey enjoys an early spring and a protracted autumn; vegetation being usually active and forward in March, and the landscape of the country far from naked so late as the end of December. The dreary aspect of winter, therefore, is short lived. With rare exceptions, the latter season passes off in soft or windy weather, with intervals of astonishingly mild days, and with scarcely any frost or snow. The prevailing winds of this season are the west and southwest, and the actual temperature, its variations and ranges, are all in favour of the island, compared with other places in neighbouring latitudes. The season of spring is of course marked by the same unsteadiness of temperature and harsh variations of weather, as in most places under a similar latitude; and this disadvantage is particularly felt in May, which often fails to bring with it the expected enjoyments. The month of March, on the contrary, is comparatively mild, and so is October." Dr. Hooper farther remarks, (p. 71,) that the general qualities of the climate of Jersey may be made available to the invalid, to whose case they are applicable, during a period of six months in the year.

St. Helier's, the capital of Jersey, Dr. Scholefield says, is not favourably situated for exercise, and is peculiarly subject to rain and fogs. The most healthy situations in Jersey, according to Mr. Murray, are on the southwest side of St. Helier's parish. The eastern side is also healthy; and St. Aubin's, about three miles to the west of St. Helier's, is considered one of the best situations for invalids.

The most prevalent disease in the Channel Islands is chronic rheumatism, which among the people of the rural districts is universal after the age of thirty; dyspepsia, diseases of the liver, and dropsy are also prevalent. Scrofula is common, particularly among the Jewish part of the population. Intermittent and remittent fevers are frequent; and diseases of the skin very much so. Phthisis is said not to be frequent, but no accurate statistical account is given. Calculous diseases are rare; inflammatory diseases are not of acute character, and the natives do not bear bleeding well.

The climate of the Channel Islands has a close resemblance to that of the southwest coast of England, and especially to Penzance. There are the same equable temperature, the same soft humid

atmosphere, and the same liability to high winds during the winter, and cold northeast winds in the spring, which characterise the latter place. So close is the affinity of their climates, and so similar their influence on disease, that the remarks which have been made on the southwest of Devonshire, and the Land's End, as residences for invalids, are perfectly applicable to the Channel Islands.[1]

CLIMATE OF FRANCE.

The south of France has long been held in estimation for the mildness of its winter climate, and various parts of it have been and are still resorted to by invalids. The southern provinces, as regards climate, admit of being classed under two divisions, namely, the *southeastern* and the *southwestern;* differing essentially from each other in the physical characters of their climate, and the influence of this on disease.

SOUTHWEST OF FRANCE.

The climate of the southwestern provinces of France resembles in its general qualities that of the southwest of England; the mean annual temperature being about 4° higher. The climate may be characterised as soft, relaxing, and rather humid.

Laennec found the southern coast of Brittany favourable to consumptive patients; and he also observed that the proportion of consumptive diseases in this part of France, was comparatively small. Generally speaking, the climate of the southwest of France will be found useful in chronic inflammatory affections of the mucous membranes accompanied with little secretion, as in chronic bronchitis not attended by much expectoration, or difficulty of breathing, and in similar morbid states of the larynx and trachea. It will be equally proper in dry scaly eruptions of the skin; in dysmenorrhœa; in certain kinds of headach, especially those induced or exasperated by sharp northeast winds; and in high morbid sensibility in general, when accompanied with that habit of body which the ancients called *strictum.* On the other hand, the same diseases occurring in relaxed habits, in which there is a disposition to copious secretion, will be aggravated by this climate.

PAU.

Pau, the capital of the Department of the Lower Pyrenees, and the only place in this district of which I consider it necessary to

[1] For fuller and more particular information regarding Jersey, Dr. Hooper's work, already referred to, may be advantageously consulted.

give a particular account, is finely situated upon a ridge of gravelly hills, overlooking an extensive valley to the north. The Pyrenees rise gradually behind it, their higher range being nearly forty miles distant. Pau is about 150 miles from Bourdeaux, and 50 from Bayonne. Having made but a short visit to this place myself, I am principally indebted for the following account of it to the kindness of Dr. Playfair, (now of Florence,) who resided there for several years.

Although the character of the climate of Pau corresponds with that of the southwest of France generally, it possesses some peculiarities which it owes to its topographical situation. Notwithstanding its distance from the coast, it is very much under the influence of the Atlantic. All the changes to which this gives rise extend as far as Pau, though modified, in some degree, by distance, and still more, by the position of the place with respect to the neighbouring mountains. Calmness, for example, is a striking character of the climate, high winds being of rare occurrence and of short duration.

The mean annual temperature of Pau is 4½° higher than that of London, and about 3° higher than that of Penzance; it is about 5° lower than that of Marseilles, Nice, and Rome, and 10° lower than that of Madeira. In *winter*, it is 2° warmer than London, 3° colder than Penzance, 6° colder than Nice and Rome, and 18° colder than Madeira. But in the *spring*, Pau is 6° warmer than London, and 5° warmer than Penzance; only 2½° colder than Marseilles and Rome, and 7° colder than Madeira. The range of temperature between the warmest and coldest months at Pau is 32°; this at London, and likewise at Rome, is 26°; at Penzance it is only 18°, and at Madeira 14°. The daily range of temperature at Pau is 7½; at Penzance it is 6½°; at Nice, 8½°; at Rome, 11°.

The annual quantity of rain has not been measured at Pau. The number of days in which rain falls is 109; nearly the same as at Rome, and about seventy less than at London. The west wind blowing directly from the Atlantic, is accompanied with rain; the wind from the northwest, and from this point to the northeast, brings dry, cold weather; while that from the northeast to the south, is usually attended by clear, mild weather. The south, and southwest winds, are warm and oppressive. The westerly, or Atlantic winds, are the most prevalent; the north wind blows feebly, and is not frequent; the oppressive southerly winds are of rare occurrence, and seldom continue beyond twenty-four hours. Indeed, Pau appears to be almost exempt from the oppressive southerly winds on the one hand, and the cold northwest winds on the other; both of which prevail over this part of France generally. The easterly winds are next in frequency to the west, with which they usually alternate, and it is observed that, according as the one or other wind prevails, the weather is rainy, or dry and pleasant.

Though from the more frequent occurrence of westerly winds, this climate may be said to be rainy, still it is not subject to some

of the evils which commonly attend humid climates; or, at least, it suffers from them in a less degree than these generally do. Rain seldom continues above two days at a time, and is usually followed in a few hours by warm sunshine; while the ground, from the absorbing nature of the soil, dries rapidly. The atmosphere, generally speaking, is also remarkably free from moisture, as indicated by the hygrometer. In October, some snow generally falls on the centre chain of the Pyrenees; and, at Pau, this fall is marked by a sudden change of temperature, the weather becoming rainy and chilly. In November, the weather clears up, and becomes milder. December and January are cold and dry; frost and slight snow showers then occur, but the snow does not lie on the ground. The sun is bright and warm; and from twelve till three o'clock, an invalid may generally take exercise. February is milder; but, towards the end of this month the spring rains fall, and the weather is then chilly and disagreeable. March is mild, but variable; though there are no cutting winds. In spring, westerly winds, which are soft and mild, accompanied with rain, alternate with dry easterly winds, also of a mild character. Hence it is, that the vernal exacerbation of inflammatory affections of the stomach and lungs, so commonly observed in other climates, is little felt by invalids at Pau. Vegetation bursts forth in the first week of April, which is a warm month. May resembles April, but is warmer. In June the weather is hot and fine. July, August, and September, are very hot months, the thermometer sometimes rising as high as 94° in the shade; with a very powerful sun, preventing exercise from eight in the morning till seven in the evening.

According to Dr. Playfair, the good qualities of the winter climate of Pau may be summed up as follows:—Calmness, moderate cold, bright sunshine of considerable power, a dry state of atmosphere and of the soil, and rains of short duration. Against these must be placed—changeableness, the fine weather being as short lived as the bad; rapid variations of temperature, within moderate limits. In autumn and spring there are heavy rains.

Pau is upon the whole healthy. Intermittent and bilious fevers, and rheumatism, are the most prevalent diseases. Rheumatism, according to a native author, is the only disease that is very common; it exists almost as an endemic, and simulates or complicates almost all the other diseases.[1] Goitre is also very common among the peasantry. The intermittent fevers occur chiefly among the peasants who frequent the low damp grounds in the neighbourhood.

There are several circumstances in the climate of Pau which render it a favourable residence for a certain class of invalids. The atmosphere, when it does not rain, is dry, and the weather fine, and there are neither fogs nor cold piercing winds. The characteristic quality of the climate, however, is the comparative mildness of its spring, and exemption from cold winds. While the

[1] Journal de Physiologie, tom. vii. p. 303.

winter is 3° colder than the warmest parts of England, and 6° colder than Rome, the *spring* is 5½° warmer than the former, and only 2½° colder than the latter. The mildness of the spring, and its little liability to winds, render this place favourable in chronic affections of the larynx, trachea, and bronchi. In gastritic dyspepsia Dr. Playfair has found it beneficial, and he has seen it useful in a few cases of asthma. With delicate children, also, he found the climate agree well, especially when they removed to the mountains during the summer.

Upon the whole, Pau appears to be the most desirable winter residence in the southwest of France, for invalids labouring under chronic affections of the mucous membranes. In the same class of diseases, the mineral waters of the Pyrenees are also very beneficial; and it may be convenient, and advisable, for the invalid, who has derived benefit from a course of these waters, to pass the winter at Pau, with a view of returning to them in the following season.

Invalids labouring under, or subject to attacks of rheumatism, should, of course, avoid Pau. In bronchial diseases, also, when accompanied with much general relaxation of the system, and with copious expectoration and dyspnœa, the climate will not in general prove beneficial; and Dr. Playfair considers it too changeable in consumptive diseases.

Dr. Foville, who passed two years at Pau, for the benefit of his own health, considers the above account of its climate correct in the main, but in some respects too favourable. Its greatest advantage is the constant calmness of the air. He thinks the climate uncongenial to persons with delicate chests. The inhabitants, he says, are generally healthy, and the mortality less than in most cities of France.

Invalids, who mean to pass the winter at Pau, should arrive there in the end of September, or very early in October.

In fixing the period for leaving Pau, the destination of the person must be taken into account. If the object is to return to England, he may leave it in May; if he means to spend the summer among the Pyrenees, he should not leave it before June. The best season for using the mineral waters of the Pyrenees commences about the first of July.

SOUTHEAST OF FRANCE.

Various places in the *southeast* of France have been, at different times recommended as affording a good winter climate for consumptive patients; but nothing can be more unaccountable than how such an advice ever came to be given; as the experience of later years is in complete opposition to it, and the general and leading characters of the climate show, that there never was the least reason to sanction it. How the practice of sending consumptive invalids to the southeast of France originated, it is not of importance to inquire; but that it is founded on error, I think I shall be able

to prove, by a reference to the total want of success which has attended it, as well as to the physical characters of the climate.

The mean annual temperature of Provence generally, is 58°: that is, about 7° warmer than the southwest of England, 3° warmer than the southwest of France, and about a degree below Italy, including the climate of the lower Apennines. Its *winter* temperature is 43°; being only 1½° above the southwest of England, and 1° above the southwest of France, while it is 3° under Italy. The *spring* temperature is 55°; namely, 6° above the southwest of England, 1° above the southwest of France, and 2° below Italy. The temperature is distributed very unequally through the year; the difference of the mean of the warmest and the coldest months being 35°; this in the southwest of England is 22°, in the southwest of France 30°, in Italy 32°, and in Madeira only 14°.

Dryness is one of the most remarkable characters of the climate of Provence. At Marseilles and Toulon, about nineteen inches of rain fall annually. This is less by six inches than what falls at London, and is not half so much as falls in the southwestern extremity of Cornwall. The annual number of days on which rain falls in Provence, is only sixty-seven, while at London it is 178. Again, in Provence (at Toulon) the quantity of water evaporated annually, is forty inches, while at Paris it is thirty-two inches, at Gosport twenty-five, and at London only twenty-four. When these circumstances are taken into consideration, together with the high mean temperature, the climate of Provence appears the driest in Europe. Indeed, the dry nature of the soil, and the bare parched aspect of the country, bespeak this.

The general character of the climate of the southeast of France is thus dry, hot, and irritating. Its temperature throughout the year and the day is distributed with great irregularity, and the range is much wider than in our own climate; being, as three to one for the year, and as two to one for the day. The temperature, no doubt, remains more steady from day to day, than our own; but its changes, though less frequent, are more sudden and extensive. Sometimes the winter is very rigorous. The orange trees are occasionally killed by the cold in the most sheltered parts of Provence. In 1709 the ports of Marseilles and Toulon were frozen over.

This tract of country is subject also to keen, cold, northerly winds, especially the *mistral*, which prevails during the winter and spring, and is most injurious in pulmonary diseases.

Although decidedly improper for consumptive patients, and for those labouring under irritation of the mucous membranes of the stomach, larynx, or trachea, this climate may prove useful to invalids of a different class. On persons of a torpid, or relaxed habit of body, and of a gloomy, desponding cast of mind, with whom a moist relaxing atmosphere disagrees, the keen, bracing, dry air of Provence, and its brilliant skies, will often produce a beneficial

effect. In some cases of chronic intermittent fevers, also, it proves very favourable.

The distinctive characters of the climate prevail more or less in the different places resorted to by invalids, but none can be considered as exempt from them. The remarks which I have to make on these places individually, are derived partly from native practitioners, and partly from my own observation; and it will be found, I think, that the particular facts confirm the general character given of the whole southeast of France, from Montpelier to Nice.

MONTPELIER.

The celebrity of the medical school at Montpelier, had probably a considerable share in giving rise to the character which this place obtained for the benignity of its climate—*olim Cous nunc Monspeliensis*. But whatever may have been the merits of its medical school, it will be easy to show, that the climate little deserved the reputation which it long enjoyed as a residence for the consumptive. I prefer the evidence afforded on this subject by native authors. M. Murat, in his Medical Topography of Montpelier, published in 1810, states on the authority of M. Fournier, the following proportion of deaths from consumption, at the Hotel Dieu, of that city, in the year 1763. The total number of patients that passed through this hospital in the course of the year was 2,756. The total number of deaths was 154; and of this number fifty-five died of pulmonary consumption; that is, more than a third of the whole. After alluding to M. Fouquier's opinion, that phthisis was still more frequent at a former period, he adds, "Mais la phthisie pulmonaire n'est que trop répandue dans ce pays: elle y enlève même des familles entières; et la position de la ville, et la constitution sèche et variable des saisons physiques, sont des causes locales qui la développeront toujours."[1] M. Fournier, the author from whom the above numbers are taken, observes, when noticing the prevalence of northerly winds at Montpelier, during the winter and spring, "Il faunt avoir la poitrine bien bonne et bien constituée pour résister à ses impressions."[2] Other circumstances in the topography and nature of the climate of Montpelier might be stated to show its unfitness as a residence for consumptive patients, but surely it is unnecessary to adduce further evidence on the subject. Consumptive patients are frequently sent from this place to the village of Gauche, at the foot of Cevennes, about two leagues distant.

MARSEILLES.

This place is but little intitled to claim any exemption from the general character of the climate of Provence. It is open to the full

[1] Topographie Médicale de la Ville de Montpelier, p. 149.

[2] Recueil d'Observations de Médecine des Hôpitaux Militaires, par M. Richard de Hautsierck, tom. ii. p. 5.

influence of the cold winds of this country, and especially to the mistral. There is, moreover, no part of the neighbourhood of Marseilles, where invalids can take exercise, when the weather does permit them to go out; one of the principal objects for which they left their own climate. The country around the city is divided into small properties, each enclosed by high walls, between which the roads in every direction lead for miles. The dry, arid nature of the soil, renders these roads in general very dusty, and the narrow winding form, subjects them to gusts of wind; both of which circumstances makes them most improper exercising ground for invalids labouring under pulmonary irritation. Indeed, it may be almost said, that there is no country about Marseilles, at least for the stranger residing there. But the character of the climate is still more objectionable. It is dry, variable, and subject to cold irritating winds, which are particularly injurious to consumptive patients. Marseilles is indeed, one of the towns in France in which pulmonary consumption is most prevalent. A large proportion of the youth of both sexes is carried off by it. Females, from fourteen to eighteen years of age, are said to be its most frequent victims. To use the words of a native author: "Il fait des ravages inouiés en moissonnant la plus belle jeunesse."[1] Scrofula attacking the external parts of the body is rather a rare occurrence at Marseilles. Pleurisy and catarrh are frequent; as are cancer and cutaneous eruptions. Diseases of the uterine system are also common.

Invalids requiring a dry climate, and capable of bearing keen, cold winds, will be benefited by a residence at Marseilles: patients labouring under intermittent fevers often get rid of them on coming to this place.

HYERES.

The little town of Hyères, agreeably situated on the southern declivity of a hill, about two miles from the shores of the Mediterranean, and twelve from Toulon, is the least exceptionable residence in Provence for the pulmonary invalid. It is in some degree protected from the northerly winds, and has the advantage of being situated in a beautiful, open country. Immediately under the town, the orange tree is cultivated in abundance. It is the hardiest species, and thrives very well in general, being little injured by the winter. It has, nevertheless, happened several times, although after an interval of many years, that the cold has been sufficiently intense to destroy the whole of the orange trees at Hyères in one night. This occurred last in the winter of 1820, on which occasion not a single orange tree escaped; and many of the olive trees, in the most exposed situations, were also partially killed.

The lower grounds are occupied with vines and corn, and about

[1] Exposé des Travaux de la Société de Medecine de Marseilles, 1816, par M. Sigaud, p. 14.

the bases of the hills the olive is extensively cultivated, and attains a considerable size. The hills immediately surrounding Hyères are finely covered with evergreen shrubs, affording a striking contrast to the bare, unseemly aspect, which the hills of Provence generally present. The thyme, rosemary, lavender, and many other aromatic plants grow here in abundance; and several of these we find blooming in December. With all these indications of mildness, Hyères is by no means sufficiently protected from the mistral to render it a desirable residence for consumptive invalids, (setting aside objections from the nature of the climate,) although it has been strongly recommended as such. It is true that about the base of the hills there are some spots sheltered from the mistral, where the invalid might enjoy several hours in the open air almost every day; but these are almost unattainable when they would be most useful. The chilly blast sweeping round every exposed corner, forbids the valetudinarian venturing there, except in a close carriage, while the roads leading to these places do not admit wheeled vehicles. When the weather does permit, the invalid residing at Hyères may enjoy the advantage of a variety of rides through a fine open country. But when the mistral blows with any degree of force, he should confine himself to the house, if his chest be delicate; and he must even be cautious at all times of exposing himself to this wind, which, independently of its low temperature, is very irritating. With all these objections, the climate of Hyères is the mildest in Provence; and the invalid may feel assured, that whatever inconveniences he is subjected to from the cold winds at this place, he would have experienced in a greater degree at any other part of the southeastern district.

NICE.

The climate of Nice approximates more nearly in its general characters to that of Provence, which has just been described, than to any other. Its mean annual temperature is 59°, being 9° warmer than London, 7° warmer than Penzance, 1° colder than Rome, and 5° colder than Madeira. The mean temperature of *winter* is 48°; that is, nearly 9° warmer than London, 4° warmer than Penzance, 1° colder than Rome, and 12° colder than Madeira. The mean temperature of *spring* is 56°; being 7° warmer than London, 6° warmer than Penzance, 1° colder than Rome, and 6° colder than Madeira. The temperature throughout the year is more equally distributed at Nice than at any place in the South of Europe, of which we have accounts, except Rome and Cadiz; the difference of the warmest and coldest months being only 28°, and the mean difference of successive months only 4°.74.

The range of temperature for the day is also less at Nice than at any other part of the south of Europe; and in steadiness of temperature it ranks next to Madeira.

The mild and equable character of the climate of Nice depends

in a great measure on the position of the place with respect to the neighbouring mountains and the sea. The maritime Alps form a lofty barrier, which shelters it from the northerly winds during winter; and the cool sea breeze, which prevails every day, with a regularity almost equal to that of a tropical climate, moderates the summer heat. "Cet alizé Méditerranean," says M. Risso, "toujours doux, frais et tranquille, s'eleve periodiquement vers neuf à dix heures du matin, cesse souvent vers les quatre heures après midi, et s'étend dans l'intérieur de nos Alpes rarement au delà de huit myriamétres."[1] These circumstances explain the small annual range of temperature at this place, already noticed, and which a reference to the table in the Appendix will show to be much less than at most parts of Italy.

Notwithstanding the extent, however, to which Nice and its environs are encircled by mountains, (and it is so in a great measure from W. S. W. to E. S. E.,) it is by no means exempt from cold winds during the winter, and still less so during the spring. The easterly winds are the most prevalent during the latter season. They range from east to northeast, frequently blow with considerable force, and are often accompanied with a hazy, cloudy, state of atmosphere. Sometimes this wind sets in towards the forenoon, at other times not until the afternoon. When the early part of the day is fine, it never should be lost for exercise; as the afternoon frequently proves cold and windy, after a calm mild morning.

From the northwest or mistral, which is the scourge of Provence, Nice is pretty well sheltered. The force of this wind seems to be broken, and directed to the southward by the Estrelles, a chain of mountains between Frejus and Cannes. Although the mistral is never experienced in its full power at Nice, or only at least towards its termination, when it takes a more westerly direction, (*la queue de la Mistral*, as it is called,) the keen, dry quality of the air is very sensibly felt whilst it prevails. It sets in generally about two or three o'clock in the afternoon, and is not of long duration. The wind seldom blows strong directly from the north, though the air is very sharp when it is in that quarter. The northerly gales appear to pass obliquely over Nice.[2] The sirocco is of rare occurrence,

[1] Histoire Naturelle de Principales Productions de l'Europe Meridionale, et particulierement de celles des Environs de Nice. 1825, par A. Risso. Vol. i. p. 219. To this excellent work I beg leave to refer my readers who may be desirous of information respecting the Natural History of the south of Europe.

[1] "On éprouve fort rarement," says M. Risso, "toute sa force dans les couches inférieures de l'air qui environnent le plateau de Nice, à cause du triple rang de montagnes qui l'entourent; il occupe presque toujours les couches supérieurs, et descend en pente comme un grand torrent aérien sur la mer; car on aperçoit a un kilomètre du rivage qu'il commence à en friser la surface pour former un peu plus loin des vagues qui, s'elévant les unes sur les autres, vont porter les tempêtes sur les côtes boreales d'Afrique."—*Hist. Nat.* vol. i. p. 216.

and when it does pay a visit, it is gentle, and not unpleasant to the feelings of invalids in general.

The weather at Nice during the winter is comparatively settled and fine, the atmosphere being generally clear, and the sky remarkable for its brilliancy. The temperature seldom sinks to the freezing point, and when it does, it is only during the night; so that vegetation is never altogether suspended. Indeed, at Nice, winter is a season of flowers, the dryness of the air rendering the same degree of cold less injurious to them, than it would be in a more humid atmosphere. Spring is the most unfavourable season; the sharp, chilling, easterly winds are the greatest enemy with which the invalid has to contend; and the prevalence of these during the months of March and April is admitted, I believe, by all who have felt them, to form the greatest objection to this climate, especially in pulmonary diseases.

The climate of Nice is altogether a very dry one. Rain falls chiefly during particular seasons. From the middle of October to the middle of November it generally rains a good deal; also about the winter solstice there is commonly some rain, and again, after the vernal equinox. The quantity of rain that falls during the year has not been accurately estimated.

Upon the whole, in the physical qualities of its climate, Nice possesses some advantages over the neighbouring countries of Provence and Italy, inasmuch as it may be said to be free from the sirocco of the latter, and protected from the mistral of the former.

Nice is upon the whole a healthy place. Catarrhal affections and inflammation of the lungs rank among the most frequent diseases. The latter is especially common and violent in the spring, and is generally complicated with irritation of the digestive organs. Pulmonary consumption is much less frequent in England and France. Gastric fever and chronic gastritis are very common diseases. Indeed, gastric irritation appears to be very prevalent; and almost all other diseases are complicated with more or less of it. Intermittent fevers are not unfrequent among the peasantry living or labouring in unhealthy situations in the country. The flat ground on the banks of the Var is the most fruitful source of these fevers. The guards stationed on the bridge which crosses this boundary stream, are frequently attacked with ague, during the unhealthy season, though they remain there only a few days at a time. This is a disease, however, from which the winter resident at Nice has nothing to fear. Dr. Skirving, during a long residence there, met with one case only of ague amongst the strangers. Diseases of the eyes are very prevalent, particularly amaurosis and cataract; cutaneous diseases are also very common. The elephantiasis of the Greeks is occasionally observed in certain warm spots in the neighbourhood. It is also found sometimes in the vicinity of Marseilles, and, I believe, along the whole of this coast. It is less common in Italy, except perhaps at Naples.

In proceeding to describe the effects of the climate of Nice on

disease, I feel it due to Dr. Skirving, who practised there many years, to state, that I am much indebted to him for favouring me with the results of his extensive experience.

In *consumption*, the disease with which the climate of Nice has been chiefly associated in the minds of medical men in this country, little benefit I fear is to be expected from it. When this disease is complicated with an irritable state of the mucous membranes of the larynx, trachea, or bronchi, or of the stomach, the climate is decidedly unfavourable; and, without extreme care on the part of the patient, and a very strict regimen, the complaint will in all probability be aggravated by a residence at Nice. Indeed, the cases of consumption which ought to be sent to this place are of rare occurrence. If there are any such, it is when the disease exists in torpid habits, of little susceptibility, and is free from the complications which have been just mentioned. Even the propriety of selecting Nice as a residence for persons merely threatened with consumption, will depend much upon the constitution of the individual. Dr. Skirving has met with cases which leave no doubt on his mind, that a residence for one or two winters often proves of advantage, as a preventive measure, in young persons predisposed to this disease; and even in some instances when there was every reason to believe that tubercles already existed in the lungs, the climate has appeared to be useful. But in the advanced stage of consumption, his opinion, founded on eight years' experience, accords with what has been already stated; and this is still further supported by the testimony of Professor Foderé, of Strasbourg, who resided six years at Nice.[1] Indeed, sending patients, labouring under confirmed consumption, to Nice, will, in a great majority of cases, prove more injurious than beneficial.

In *chronic bronchitis*, which often simulates phthisis, very salutary effects are produced by a residence at this place. Such patients generally pass the winter with comparatively little suffering from their complaint, and with benefit to their general health. They are here able to be much in the open air, whereas, if they had remained in England, they would in all probability have been confined during the greater part of the winter to the house. The particular kind of bronchial disease most benefited by a residence at Nice, is that which is accompanied with copious expectoration, whether complicated with asthma, or otherwise; and in the chronic catarrh of aged people it is particularly beneficial. This variety of bronchial disease is directly the reverse of that which is mitigated by the southwest of France and of England: and I think it important here to remark, that unless the distinctions which I have pointed out in bronchial diseases, and their complications, are attended to, great errors must be committed in selecting a residence

[1] See Voyage aux Alpes Maritimes, ou Histoire Naturelle, Agraire, Civile et Medicale du pays de Nice, &c. Strasbourg, 1823.

for such patients. For fuller information on this subject, the reader is referred to the article on "bronchial diseases."

The *gouty* invalid may, in most cases, escape his usual winter attack; and, provided he lives with prudence, his general health may be improved by a winter's residence at Nice.

In *chronic rheumatism*, the climate is generally very beneficial; and its advantages are also remarkable in *scrofulous complaints*. On children the climate generally exerts a very favourable influence, if attention be paid to their diet.

In the numerous train of hypochondriacal and nervous symptoms which often originate in dyspeptic complaints, Nice is beneficial; but here, again, it is necessary to distinguish the particular character of the affection. The cases of dyspepsia most benefited are those accompanied with a torpid, relaxed state of the system, with little epigastric tenderness, or any of those symptoms which denote an inflamed or very irritable state of the mucous membrane of the stomach. Where the latter state prevails, Nice will decidedly disagree. But I must refer to the article on "disorders of the digestive organs" for more precise directions regarding the best winter residence for persons suffering from stomach complaints.

In all cases where there is great relaxation and torpor of the constitution, the climate of Nice is extremely useful. In young females labouring under such a state of system, connected with irregularities of the uterine functions, either when these have not been established at the usual period, or when they have afterwards been suppressed, marked benefit may generally be expected. In indicating the class of cases alluded to, as likely to derive advantage from the climate of Nice, I would designate them to the practical physician as those that are usually relieved by chalybeates.

In a numerous class of patients, whose constitutions have been injured by a long residence in tropical countries, by mercury, &c., and in which a dry and rather exciting climate is indicated, Nice will prove favourable. Some cases of chronic paralysis, not connected with cerebral disease, have also been found to derive considerable benefit from a residence at this place.

In stating its general influence on the animal economy, I would say—that the climate of Nice is warm, exhilarating, and exciting, but upon the whole, irritating—more especially during the spring—at least to highly sensitive constitutions. It is extremely favourable to the productions of the vegetable kingdom, some of which flourish here in a degree of luxuriance that is scarcely to be equaled in the other parts of the south of Europe.[1]

[1] "Peu de contrées méridionales de l'Europe offrent un tableau aussi varié en vegetaux indigênes et exotiques que les environs de Nice. Dans le fond, c'est une masse d'oliviers qui s'étend sur toutes les collines, et dispairaît insensiblement à mesure qu'elle s'eloigne du rivage de la mer. Sur le devant, ce sont des orangers, des bigaradiers, des limoniers, disposés en jardins qui offrent toute la luxe des Hespérides. Pour relever la sombre verdure des uns et la monotonie des autres, des caroubiers, des figuiers, des

Invalids who pass the winter at Nice, scarcely ever reside in the town. Some good lodgings, and tolerably well situated, overlooking the terrace, are, however, now to be had; but in the suburb, called the *Croix de Marbre*, and along the sea beach, from the town to the ridge of mountains where the plain terminates on the west, the largest and best houses are to be found; and here strangers generally reside. At the foot of the hill on which stood *Cimiez* there are also some good houses; and this is a situation preferable to the lower part of the plain for patients very susceptible of injury from damp.

Invalids should endeavour to arrive at Nice about the middle of October, or sooner, and should not leave it before the beginning of May. Whatever may be the inconvenience here experienced from the spring winds, the same will be felt in a much greater degree by returning through the South of France; and, accordingly, both Dr. Skirving and myself have known invalids suffer materially from the winds of Provence by leaving Nice too early. It is true that the new road which has lately been opened between Nice and Genoa, admits of the invalid moving in that direction, at a much earlier period than it would be advisable for him to return over the Estrelles to Provence; and when the climate of Nice is found to disagree, a change in the spring in the direction of Genoa may, in some cases, be advisable.

Villa Franca.—This little town, situated on the southern base or rather declivity of a steep and lofty range of mountains, and having a beautiful bay extended out before it, is immediately to the eastward of Montalbano, which separates the bay of Villa Franca from that of Nice. From the north and northwest winds this place is certainly more effectually protected than Nice; it is also sheltered from the northeast, but open to all other easterly winds. In its general characters the climate corresponds closely with that of Nice; it is said to be still drier and somewhat warmer, and it is certain that the vegetable productions are considerably earlier than at Nice. At present there are very few accommodations at Villa Franca, and the communication with Nice is extremely inconvenient. It has long been in contemplation to cut a good road along the sea shore between these two places. Should this be accomplished, the accommodations at Villa Franca will, no doubt, be speedily increased; as sites for building may be found in this secluded little vale more effectually protected from cold winds than any part of the more open and extended plain of Nice.

Menton is also a very sheltered spot, about fourteen miles from Nice on the Genoa road; and *San Remo*, still further, is even more protected from easterly winds. The great mildness of both

jujubiers, des raquettiers, des dattiers, des grenadiers, et toutes sortes d'arbres fruitiers distribués sans ordre, en étalant toute leur vigueur, achèvent d'orner et d'embellir ce bel ensemble."—*Histoire Naturelle*, &c. vol. i. p. 313, &c.

places is indicated by the flourishing state of their lemon plantations. And at Bordighera, in the neighbourhood of the latter, the palm-tree is cultivated on a large scale for the sake of its etiolated leaves, of which it has long afforded a supply for the ceremonials of the church of Rome. But the want of accommodation at these places, at present, prevents the invalid, to whom a change from Nice might be advantageous, from availing himself of it. The increased number of travellers, however, who now pass by the road, lately formed from Nice to Genoa, will most probably soon afford the means of improving the accommodation along this beautiful coast.

ITALY.

Italy possesses great diversity of climate, but my observations are limited to the part situated between the base of the Apennines, and the shores of the Mediterranean. The climate which prevails over the whole of this region, while it exhibits a great similarity of character, differs in several respects from any of the climates already noticed. It is considerably warmer and less humid, but subject to a greater range of temperature than that of the southwest of France; it is softer, less dry, and less harsh and irritating than that of Provence; suffering more from the heavy oppressive winds of the south, and less from the dry searching winds of the north.

The principal circumstance which appears to modify the general character of this climate at the different places, is, their relative position with respect to the sea-shore and the Apennines. In this there is considerable variety; Genoa and Naples are in the vicinity of both, as the mountains at these places approach closely to the Mediterranean; Pisa is only a few miles distant from the latter, and close to the Tuscan hills, a branch of the lower Apennines; Rome is about twelve miles from the coast, and nearly twice that distance from the mountains; Florence is quite embosomed in the Apennines, and the character of its climate is thereby affected to such a degree as scarcely to admit of its being classed with the other Italian climates.

GENOA.

The situation of Genoa, hemmed in between a range of steep mountains and the sea, with little or no surrounding country well adapted for exercise, renders it an unsuitable residence for invalids generally; nor is there much in the character of the climate to recommend it. The summer is hotter, and the winter colder than at Nice; the difference between the mean temperature of the

warmest and coldest months being 35°, while at Nice it is only 28°. The distribution of heat throughout the year is also very unequal, and the temperature by no means steady from day to day. The air is sharp and exciting, but with less of the irritating quality than that of the southeast of France. The climate is, on the whole, dry and healthy, but not suitable to delicate, sensitive invalids. It is more congenial to relaxed, phlegmatic habits. Dyspeptic complaints and gout are said to prevail less at Genoa than at most parts of Italy. For pulmonary affections, Genoa is decidedly an improper residence. It is subject to frequent and rapid changes of temperature, and to dry cold winds from the north, alternating with warm, humid winds from the southeast—the two prevailing winds of the place. To these rapid changes are attributed the inflammatory affections of the respiratory organs, which, with tubercular consumption, cause the greater part of the mortality of Genoa. In some places in the neighbourhood, more sheltered from these winds, inflammatory affections of the lungs are much less common than in the city and its immediate vicinity. Consumption is said to be less rapid in its course at Genoa than in Provence. Rheumatism is frequent, while gout, as already mentioned, is comparatively rare, as are calculous diseases. Scrofula is common. Intermittent fevers are rare, and of mild character.

FLORENCE.

Though Florence is one of the most agreeable residences in Italy, it is far from being a favourable climate for an invalid, and least of all, for an invalid disposed to consumption.

Its situation among the lower Apennines, by which it is almost encircled, and the summits of which are covered with snow during the winter, together with its full exposure to the current of the valley of the Arno, renders Florence subject to sudden transitions of temperature, and to cold piercing winds during the winter and spring. Fogs, too, are more common here than at most parts of Southern Italy. The winter temperature is upon the whole low, while that of the summer is high. The mean annual temperature is only 1½° below that of Rome; but this is owing to the great heat of summer at Florence; for the winter is only 4° warmer than that of London, and is nearly of the same temperature as the winter at Penzance. The difference between the mean temperature of the warmest and coldest months is 36°, which is one degree more than that of Provence. Nevertheless, although the daily, monthly, and annual ranges of temperature are very great, the climate is not more variable or unsteady from day to day than that of Rome, and is less so than that of Naples. The annual range of atmospheric pressure is greater than that of the neighbouring places. The annual fall of rain at Florence is 31.6 inches, but the number of days on which rain falls is only 103, being fewer than at Rome. In the winter the air is rather chilly, and loaded with moisture.

I do not know any class of invalids for whom Florence offers a favourable residence. My own opinion, founded partly on observation, and partly on the reports of invalids, perfectly accords with that of Dr. Seymour of London, and Dr. Down of Southampton, whose more extensive opportunities of observation during a long residence and extensive practice at Florence, make their testimony of greater value. "The winter," says Dr. Down, "is extremely severe and wet, and the spring changeable, consequently highly injurious in complaints of the chest. The inhabitants are very subject to diseases of the lungs; and the acute inflammation of this organ carries off yearly in the winter and spring an amazing number of them, particularly of the poorer classes, whose houses are ill calculated to afford protection against the cold and rains of these seasons."[1] Florence is one of the places in Italy which agrees least with children. Intestinal worms are particularly common there, and dysentery is prevalent in autumn.

PISA.

Pisa has long had the reputation of being one of the most favourable climates in Italy for consumptive patients. It has accordingly been frequented, and continues to be so, by invalids from this country. It is even resorted to, during the winter, by invalids from the rest of Tuscany, from the neighbouring states of Lucca, and occasionally, also, from Lombardy.

The town is built on the banks of the Arno, about five miles from the sea-shore. The surrounding country is flat, except towards the north, where a range of hills shelters Pisa in some measure from the winds of that quarter. It is also protected, in a considerable degree, from easterly winds by the lower Tuscan hills. The Arno, in flowing through Pisa, makes a semi-circular sweep to the north, so that the buildings on the northern bank of the river (*Lung' Arno*) assume the form of a crescent facing the south, and shelter the greater part of the broad space between them and the river from northerly winds. This is the best residence for delicate invalids.

Pisa is not so warm as Rome in winter, and is hotter in summer. In *winter* it is 7° warmer than London, and 2° warmer than Penzance. In *spring* it is 8° warmer than London, and about 7° warmer than Penzance. The range of temperature between day and night is very considerable. According to Professor Piazzini, the fall of rain annually is very great, being 45.66 inches, which is nearly as much as falls in Cornwall. The climate of Pisa is genial, but rather oppressive and damp. It is softer than that of Nice, but not so warm; less soft, but less oppressive than that of Rome. For invalids who are almost confined to the house, or whose power of taking exercise is much limited, Pisa offers advantages over either

[1] Observations on the Nature and Treatment of Fevers and Bowel Complaints, &c. in Greece. By J. Somers Down, M. D.

Rome or Nice. The Lung' Arno affords a warm site for their residence, as well as a sheltered terrace for their walks; but they must be careful to confine themselves to it.

The most common acute diseases at Pisa are peripneumony, dysentery, and gastric fevers. Ophthalmia and cataract are frequent; but this is the case over the whole southern parts of Italy. Consumption is not a common disease, but chronic bronchial affections are frequent; and croup is occasionally met with. At one period, intermittent fevers were very prevalent; but since the country around Pisa has been drained and cultivated, they are comparatively rare. In the hospital, however, a large proportion of the patients who undergo operations, have an attack of this fever, which sometimes even assumes the pernicious form. Hospital gangrene is more common in the hospital at Pisa than in most other hospitals in Italy; and the same may be said of diseases of the bones. Nervous affections likewise prevail, but not so much as at Rome. Calculous diseases are so rare, that Vacca, the celebrated surgeon, during thirty-two years that he had been operating on such patients from all parts of Italy, had not had occasion to operate on one Pisan.

ROME.

The climate of Rome is mild and soft, but rather relaxing and oppressive. Its mean annual temperature is 10° higher than that of London, 8° higher than Penzance, 6° higher than Pau, about 1° higher than Marseilles, Toulon, and Nice; 1° below that of Naples, and 4° below that of Madeira. The mean temperature of *winter* still remains 10° higher than that of London, but it is only 5° higher than Penzance; it is 7° higher than Pau, 1° higher than Nice, and somewhat higher than Naples; it is 4° colder than Cadiz, and 11° colder than Madeira. In *spring*, the mean temperature of Rome is 9° above London, 8° above Penzance, not quite 3° above Pau, and 1° above Nice and Provence; it is 1° colder than Naples, and only a little more than 4° colder than Madeira.

In *range* of temperature (the extent of which is the leading fault of the climate of the South of Europe) Rome has the advantage of Naples, Pisa, and Provence, but not of Nice. Its diurnal range is nearly double that of London, Gosport, Penzance, and Madeira. In steadiness of temperature from day to day, in which our own country, with the exception of the southwest of Cornwall, is so remarkably deficient, Rome comes after Madeira, Nice, Pisa, and Penzance, but precedes Naples and Pau.

Rome, although a soft, cannot be considered a damp climate. Upon comparing it with the dry, parching climate of Provence, and with that of Nice, we find that about one third more rain falls, and on a greater number of days. It is, however, considerably drier than Pisa, and very much drier than the Southwest of France.

At Penzance there falls about one third more rain than at Rome,

and the number of rainy days is also about one third greater. This circumstance, together with the greater evaporation at Rome, owing to its higher temperature, must make a considerable difference in the hygrometrical state of the atmosphere, at the two places. Rome is not so dry as Madeira; as there falls one sixth more rain, and the proportion of wet days is as 117 to 73.

From these comparisons, it would appear that the climate of Rome, in regard to its physical qualities, in one of the best in Italy. One peculiarity of it, deserving notice, is the stillness of its atmosphere; high winds being comparatively of rare occurrence. This quality of calmness is valuable in a winter climate for pulmonary diseases, and to invalids generally, as it admits of their taking exercise in the open air at a much lower temperature than they could otherwise do. To patients labouring under bronchial irritation, wind is peculiarly hurtful. When wind does occur at Rome, during the winter and spring, it is generally from the north, (*Tramontana,*) and is very moderate, at least when it continues for any considerable time. From this quarter there are occasional storms of cold winds; but these are of short duration, being limited, with surprising regularity to three days. The Tramontana is a dry, keen, and irritating wind, resembling in its effects the cold, sharp winds of Provence; and is equally to be guarded against by invalids, who should not stir out of the house while it blows with much force. The southerly winds during the winter and spring do not produce great inconvenience to invalids at Rome. Even the relaxing and enervating effects of the *Sirocco* are not much felt, except by the more sensitive, and plethoric among the healthy, and by them only, after it has continued to blow for a few days. Debilitated invalids, on the other hand, who suffer from great irritability, and a degree of morbid sensibility of body, commonly feel the winter sirocco pleasant. In its effects on the body this wind is directly opposed to the Tramontana.[1] Notwithstanding the character given of this wind by Celsus it is the favourite of the modern Romans; and during the prevalence of the winter sirocco they feel the full enjoyment of health. In the months of March and April, winds are more frequent at Rome; they set in generally in the forenoon, and continue till sunset, when they subside, leaving the nights calm and serene. The effects of these keen, spring winds, combined with that of a powerful sun, are severely felt by the sensitive invalid; though, as far as I could observe, or learn from the testimony of others, in a less degree than at Naples and Nice, and perhaps even than at Pisa.

Diseases.—Among the more prevalent diseases of Rome, *malaria*

[1] The effects of the Tramontana and Sirocco are thus characterised by Celsus: "Aquilo tussim movêt, fauces exasperat, ventrem adstringit, urinam supprimit, horrores excitat item dolorem lateris et pectoris. Sanum tamen corpus spissat et mobilius atque expeditius reddit."—"Auster aures hebetat, sensus tardat, capitis dolorem movet, alvum solvit, totum corpus efficit hebes, humidum, languidum."—Liber ii. cap. i.

fevers are the most remarkable, and claim our first notice. In the few remarks I am about to make on the subject, I shall confine myself chiefly to those circumstances respecting malaria, which it is important for travellers to know, with the view of enabling them to avoid its effects.

In the first place, I may observe, that the malaria fevers of Rome are exactly of the same nature, both in their origin and general characters, as the fevers which are so common in the fens of Lincolnshire and Essex, in our own country, in Holland, and in certain districts, over the greater part of the globe. The form and aspect under which these fevers appear, may differ according to the concentration of the cause, or to some peculiar circumstances in the nature of the climate, or season in which they occur; but it is the same disease, from the fens of Lincolnshire and the swamps of Walcheren, to the pestilential shores of Africa; only increased in severity, *cæteris paribus*, as the temperature of the climate increases. In England, and in Holland, these fevers generally appear in the simple intermittent form; more rarely in the remittent form; and they are, for the most part, easy of cure. In France, especially towards the south, the same fevers often assume a more formidable character. Those which, from their unusual severity, and the peculiar character of their symptoms, have received the name of *pernicious*, are by no means uncommon in the southwest of France; and in the rice districts of Lombardy, they are met with in all their varieties; and with a degree of severity, perhaps equal to the more aggravated forms of the malaria fevers of Rome. Even in this country intermittent fevers occasionally assume the pernicious form, and unless medical practitioners in our malaria districts keep this in mind, patients may be lost before the real nature of the disease is discovered.

Malaria fevers seldom appear at Rome before July, and they cease about October; a period during which few strangers reside there. The fevers of this kind which occur at other seasons are generally relapses, or complicated with other diseases. One of the most frequent exciting causes of this fever, is exposure to currents of cold air, or chills in damp places, immediately after the body has been heated by exercise, and is still perspiring. This is a more frequent source of other diseases also, among strangers in Italy, than is generally believed by those who are unacquainted with the nature of the climate. Exposure to the direct influence of the sun, especially in the spring, may also be an exciting cause: it has certainly appeared to me to produce relapses. Another cause of this disease is improper diet. An idea prevails, that full living and a liberal allowance of wine, are necessary to preserve health in situations subject to malaria. This is an erroneous opinion; and I have known many persons suffer in Italy from acting on it. A deranged state of the digestive organs is generally the consequence of this regimen; and under such circumstances the individual is much more liable to disease of every kind. Irregularities in diet are one

of the most frequent exciting causes of malaria fever among the peasantry about Rome, who are the principal sufferers from it. A plain and moderate diet, as it is the most conducive to health generally, so it must, in the present case, best aid the constitution in resisting the cause of this fever. If there is any one circumstance in the state of the constitution, which more than another enables it to combat and to pass through disease, it is, according to my observation, a healthy condition of the digestive organs. In every situation of life, at all ages, and in every climate, this holds true.

In regulating the diet of persons living in a malaria country, regard should be had to the nature of the climate. The same stimulating regimen which might be borne, and even prove useful, in the damp, chilly atmosphere of Holland, will not be suited to the exciting climate of Italy. The peasantry in some parts of Italy are very sensible of this. Sleeping with open windows, either during the day or night, more especially in places subject to these fevers, is very dangerous; and I have known repeated instances of fever produced in this way. Towns are always safer than villages, and the latter than country houses; and the central parts of a town again are safer than the suburbs.

Much has been said about the healthy and unhealthy quarters of Rome; and in this respect there certainly is a material difference in the summer; but in the season during which strangers reside there, this circumstance demands much less consideration. More is to be feared from currents of cold air in the winter, than from a confined humid atmosphere, which last is the evil to be avoided during summer. This circumstance, respecting the effects of different seasons, requires attention, inasmuch as a residence that may be very proper during the winter, may not be so in summer.

It may be stated, as a general rule, that houses in confined, shaded situations, with damp courts or gardens, or standing water close to them, are unhealthy in every climate and season; but especially in a country subject to intermittent fevers, and during summer and autumn. The exemption of the central parts of a large town from these fevers is explained by the dryness of the atmosphere and by the comparative equality of temperature which prevails there. Humid, confined situations, subject to great alternation of temperature between day and night, are the most dangerous. Dryness, a free circulation of air, and a full exposure to the sun, are the material circumstances to be attended to in choosing a residence. Of all the physical qualities of the air, humidity is the most injurious to human life; and, therefore, in selecting situations for building, particular regard should be had to the circumstances which are calculated to obviate humidity either in the soil or atmosphere. A person may, I believe, sleep with perfect safety in the centre of the Pontine Marshes, by having his room kept well heated by a fire during the night.

Persons attacked by this fever should be strictly confined to the house until the disease has been completely checked; after which,

the sooner they change the air, the more likely will they be to avoid relapses, and to prevent a disposition to a return of the disease from being fixed on the constitution—a circumstance of great consequence to the future health of the individual. During the autumn or winter, such persons may go to Naples; but if the spring is far advanced, Florence will be the better place.

The next circumstance connected with the diseases of Rome, which deserves notice, is the peculiar sensibility of the nervous system of its inhabitants. This is evinced, in a very particular manner, by the disposition to convulsive affections, and the singular sensitiveness of the Romans, especially the females, to perfumes. This peculiar susceptibility of the nervous system, appears to be of recent origin. We learn from ancient authors that the Roman matrons were fond of perfumes; and as the circumstance is not mentioned by the Roman medical authors who have more recently written on the climate and diseases of Rome, for instance, Petronio, Baglivi, Marsilio Cagnato, and Lancisi, there can be little doubt that it did not exist in their time. It is to be remarked, that it is not disagreeable odours which produce such effects on the nervous system, but the more delicate, and, to northern nations, agreeable odours of flowers, and other perfumes. Headaches, and numerous other nervous affections, are produced by such odours.

The Roman physicians, who agree in the recent growth of this morbidly sensitive state of the nervous system among the inhabitants of Rome, cannot fix upon any other circumstance, to which it can be fairly attributed, except the indolent manner of life of the Romans, which favours, especially in such a climate, the relaxation and sensibility of the system. Thus Dr. De Matthaeis, after remarking that powerful odours have at all times produced sensible effects on the system, observes, that "there is nothing wonderful in this, if we consider the daily increasing mobility of the nervous system, produced by the luxurious and inactive life of our Romans."[1] Such most likely was the source of this idiosyncrasy, and no doubt still tends to maintain it; while the morbid sensibility of the nervous system, once acquired, is, doubtless, transmitted from parent to child. But though much may depend on the effeminate and indolent manner of living at Rome, the climate, I believe, has some specific effect in inducing this state of the nervous system. The habits of the Romans differ little from those of the inhabitants of the other large towns in Italy, for instance, Naples, Florence, Genoa, &c.: and yet this morbidly sensitive state of the nervous system does not exist, by any means, in the same degree, in these places. Even a temporary residence of some duration in Rome, produces a degree of the same morbid sensibility, and that in cases where the Roman mode of living cannot be adduced as the cause.

Another disease, or rather class of diseases, of much more serious character, but also, in a great degree, of modern origin, is particu-

[1] De Matthaeis Ratio Instituti Clinici Romani.

larly frequent among the Romans, under the name of *Accidente*, and speedily proves fatal. Apoplexy and other diseases of the brain, and diseases of the heart and large blood-vessels, are, I believe, the most frequent causes of these sudden deaths, and originate partly in the same sources as the nervous affections we have already noticed; as do likewise the *capiplenium*, *languor*, and *expletio*, which Petronius remarks as morbid dispositions particularly common among the Romans of his time.

Inflammatory affections of the chest rank next, in point of frequency, among the diseases of winter and spring at Rome. Acute inflammation of the lungs appeared to me more violent and more rapid in its course, than in England and other northern countries. This remark does not apply to Rome only, but I believe to the whole of Italy, and to warm climates generally. When at Dresden, the late celebrated German physician, Dr. Kreysig, remarked to me that he had never witnessed such violent cases of pneumonic inflammation in Germany, as he saw during his stay at Pavia. In Rome, the obstinacy and mortality of pulmonary diseases are greatly increased, by their frequent complication with enlarged and otherwise diseased abdominal viscera, the consequence of malaria fever.

Pure tubercular consumption is not of very frequent occurrence at Rome, the greater number of chronic affections of the lungs being the effect of inflammation. These occur chiefly among the lower classes, who are badly clothed during the winter, and many of whom are predisposed to such affections from having already suffered from repeated attacks of intermittent fever, which have left behind them obstructions of the abdominal viscera.

Headaches are common at Rome, and among strangers I found them of very frequent occurrence. On the other hand, I met with several instances of habitual headaches in young persons disappearing during a residence there. In some cases the headaches were of the pure nervous character, but a large proportion of them originated in errors of diet, and were generally remedied by avoiding these. Persons subject to this complaint, especially if it is connected with irritation of the stomach, should be particularly careful of their diet at Rome, where, owing to the greater sensibility of the nervous system, slighter causes produce headache than in this country.

Among the diseases benefited by a residence at Rome, I may rank *consumption*. In the early stages of this affection, I have generally found the climate favourable. I have frequently known patients who had left England labouring under symptoms that gave much and just alarm, and which continued during the whole journey, get entirely rid of them after a short residence in Rome. The same persons have remained comparatively free from all bad symptoms during the whole season; and this, when from the ultimate result of the case, there could be no doubt of the existence of tuberculous disease at the time.[1] In the advanced stages of consumption, the

[1] Dr. Carlyle, who resided six winters at Rome, writes me, that he was

climate produced no benefit, the disease generally proceeding in the usual course, often more rapidly (especially during the spring months) than it would have done in England.

In *bronchial affections* the climate is very generally beneficial, especially in cases where there prevails great irritability of the bronchial membrane, with much sensibility to harsh, cold winds. I have known many such patients express themselves as feeling much better at Rome than at Nice, or any of the other places where they had resided. Nothing was more common than to meet with bronchial diseases, which, after having been benefited by a short residence at Rome, were greatly aggravated by a visit to Naples, and again relieved by the return to Rome. In chronic bronchitis, indeed, more especially when the disease was of the dry irritable kind, or was complicated with irritation of the digestive organs, a residence at Rome produced the best effects; and in cases of this kind I consider it the most favourable residence on the Continent.

Chronic Rheumatism is generally much relieved; but as this disease is very frequently consequent to, or connected with, a disordered state of the digestive organs, it is necessary to take into account the particular form of dyspepsia, before sending a rheumatic patient to Rome. See the article on "Rheumatism."

With persons disposed to apoplexy, or who have already suffered from paralytic affections, and valetudinarians of a nervous, melancholic temperament, or subject to mental despondency, the climate of Rome does not agree; and in many such cases, indeed, a residence at Rome is fraught with danger; nor is it proper for persons disposed to hemorrhagic diseases, or for those who have suffered from intermittent fevers.

No city in the south of Europe frequented by invalids, affords greater facilities for exercise in the country than Rome. In the variety and extent of its rides it exceeds every other large city I have visited on the Continent. This circumstance, and the immediate vicinity of the public walks to that part chiefly occupied by strangers, renders Rome a far less objectionable abode for invalids than the generality of large towns. The Piazza di Spagna, and streets in that vicinity, afford the best residences. The streets that run in an easterly and westerly direction are to be preferred to those running north and south, as they are less exposed to currents of cold air during the prevalence of northerly winds, and the houses have a better exposure. Both the sitting and bedrooms of delicate invalids should, if possible, have a southern aspect. I had the temperature of several bedrooms noted in the night, and early in the morning, and found considerable difference between those exposed to the north and south. Nervous persons should live in the more open and elevated situations.

struck with the remarkable influence of the climate in preventing the development, and checking the progress of tubercular disease in young persons of a strumous constitution.

Besides care in the selection of apartments, there are other circumstances which require peculiar attention from the invalid residing at Rome. There is no place where so many temptations exist to allure him from the kind of life which he ought to lead. The cold churches, and still colder museums of the Vatican and the Capitol, the ancient baths, &c. are full of danger to the delicate invalid; and if his visits to these be long, or frequently repeated, he had better have remained in his own country. When an invalid does venture into them, his visit should be short, and he should choose for it a mild warm day. It is a grievous mistake to imagine that when once in such a place the evil is done, and that one may as well remain to see the thing fully. This is far from being the case. A short visit to these places is much less dangerous than a long one. The body is capable of maintaining its temperature, and of resisting the injurious effects of a cold damp atmosphere for a certain length of time with comparative impunity. But if the invalid remain till he becomes chilled, and till the blood forsakes the surface and extremities, and is forced upon the internal organs, he need not be surprised if an increase of his disease, whether of the lungs or of the digestive organs, be the consequence of such exposure. Once, and again, these visits may be made without any *evident* mischief; but sooner or later their evil effects will be manifest, as I have very often witnessed. The invalid, unwilling to admit the real cause in such cases, is too apt to impute to the climate, that which in truth arises from his own imprudence and indiscretion, in exposing himself to causes which are not necessarily connected with the climate. Excursions into the country, when the warm weather of spring commences, particularly when made on horseback, is another and a frequent source of mischief to delicate invalids.

The invalid should arrive at Rome in October, and if the chest be the part affected, and he is still very sensible to the spring winds, the beginning of May will be sufficiently early for him to leave it. After this time he should move northwards, being guided by the weather as to the period of crossing the Alps; though this should scarcely be done before the middle, or end of June. About the Lago Maggiore, or Lago di Como, the invalid may pass a week or two, if the weather is such as to render it prudent for him to delay crossing the mountains. The Simplon at this season is the best route from Italy to Switzerland.

NAPLES.

In its general characters the climate of Naples resembles that of Nice more than any other. As at Nice, the autumn and winter are generally mild, and the spring is subject to cold, sharp, irritating winds, rendered more trying and hurtful to invalids by the heat of a powerful sun. The climate of Naples is much more changeable than that of Nice; and, if somewhat softer in the winter, it is more

humid. The sirocco, which is little known at Nice, is severely felt at Naples. The mean annual temperature is higher than that of Rome, Pisa, or Nice; but the annual range of mean temperature is very considerable, being 30°, whilst that of Nice is but 28°; and that of Rome only 26°. The distribution of temperature in the different months is more unequal than at Nice or Rome. The daily range of temperature is also very great, being 2° more than at Rome. The temperature likewise varies very much from day to day, as will appear from the following statement:—The mean variation of successive days at Naples is 3° 36; at Rome it is 2° 80; at Nice 2° 33. The annual range of atmospheric pressure is very small—somewhat less than at Rome, and very considerably less than in the Southeast of France. Rain falls less frequently at Naples than at Rome.

Of the diseases of the inhabitants of Naples, catarrhal affections are the most common. Consumption is not very frequent, nor in general rapid in its course: autumn is said to be the most fatal season to the consumptive. Rheumatism is very frequent. Nervous affections are also common, as are cutaneous eruptions, and diseases of the uterine system. Naples is not subject to any endemic disease, although intermittent fever is not unfrequent in some places in the outskirts of the city. Inflammation of the eyes is very prevalent.

Of Naples as a residence for invalids it is unnecessary to say much. Consumptive patients should certainly not be sent there. The qualities which have been pointed out in its climate, sufficiently mark it as a very unsuitable residence for this class of invalids; and to the list of its defects must be added that of its topographical position, which affords no proper places for exercise, without such exposure as would prove highly injurious to delicate invalids. For chronic rheumatism the climate is certainly inferior to that of Nice and Rome. Naples is, however, well suited as a winter residence for those who are labouring under general debility and deranged health, without any marked local disease. The beauty of its situation, the brilliancy of its skies, and the interest excited by the surrounding scenery, render it a very desirable and very delightful winter residence, for those who require mental amusement and recreation for the restoration of their general health, rather than a mild, equable climate for the removal of any particular disease.

With respect to choice of situation in Naples, invalids with whom a warm and rather close atmosphere agrees, will find themselves best in the Borgo di Chiaja, Vittoria, or Chiatamone. For patients labouring under nervous dyspepsia, and for nervous invalids generally, the Largo del Castello, Pizzo Falcone, and Santa Lucia, afford more favourable residences.

The Neapolitan physicians generally condemn the vicinity of the sea in consumptive cases, and think such patients do better in the more sheltered places behind the town, and in the neighbourhood of the Studio; but here strangers do not reside. Of the situations frequented by strangers, the Borgo di Chiaja and Chiatamone afford

altogether the best residences for pulmonary invalids. These situations are fully exposed to the south, and pretty well sheltered from the north; while their immediate vicinity to the public gardens (Villa Reale) is convenient for walking exercise. But, as I have already observed, Naples is altogether an unsuitable residence for pulmonary invalids.

MALTA.

Malta is in the 36th degree of north latitude, and at a greater distance from the mainland than any other island in the Mediterranean. Its circumference is from sixty to seventy miles, its greatest length eighteen miles, and its greatest breadth twelve. Most of the southern coast is formed of high perpendicular rocks; the other parts are low and have a very barren appearance. The highest ground is, according to Dr. Sankey, something more than 600 feet above the level of the sea.[1]

The whole island consists of calcareous rock covered with but a scanty mould. Notwithstanding this, the culture which is bestowed upon it renders the soil very fertile. There is no intermission of vegetation throughout the year. March and April are the months in which it is in its most luxuriant state. It is very much burnt up during the summer months.

The surface of the island is diversified by hills of slight elevation, and vales. There is neither river nor lake, but numerous springs exist in different parts of the island.

The range of the thermometer during the month of October, November, December and January, on the average of five years, from 1830 to 1835 was as under :—

	Oct.	Nov.	Dec.	Jan.
Maximum, ...	77	69	63½	61
Medium, ...	70½	65	59	56½
Minimum, ...	64	61	54½	53

Rain is of very rare occurrence in Malta during the summer; but it falls in spring and autumn with tropical violence. The autumnal rains usually last from the middle of September to the middle of October. Rain falls most heavily during the night. Very rarely does the rain continue for several days in succession. There is occasionally hail, but never snow. Heavy falls of dew occur sometimes during the summer. Fogs are rare at any season.

The wind which has procured a bad name for Malta with strangers, is the southeast, commonly called *Sirocco*. It is a hot, humid,

[1] Malta considered with reference to its eligibility as a Place of Residence for Invalids.

and disagreeable wind. In winter it is not frequent, and never oppressive. It is most prevalent in the beginning of September. Strangers in general are affected during the prevalence of the sirocco with great lassitude and debility. Persons with diseased lungs suffer more or less from it; but, says Dr. Liddell, "I am not aware of any mischief that it produces in the healthy constitution beyond the temporary discomfort that it occasions."

The climate of Malta may be considered pretty equable, the range of temperature during the twenty-four hours seldom exceeding 6°. The air is almost always dry and clear. Gales of wind are not frequent, but Malta may be said to be a windy place, particularly in spring. Thunder storms are common during the rainy season. The fall of rain is supposed to be about fifteen inches.

Dr. Liddell's account of the winter climate of Malta is very favourable. From the middle of October to the middle of January he thinks it can scarcely be surpassed. The weather is delightful, with the exception of an occasional *gregale*, or northeast wind, which is so chilling, that during its existence, invalids should either stay at home or seek the most sheltered walks or drives. During the period mentioned, the atmosphere is generally clear, and the weather moderate; and the island is usually fanned by the agreeable northwest wind, that sweeps along the channel of Malta, over a sea at the temperature of 72°.[1]

Towards the middle of January the weather becomes unsettled; February and March are usually boisterous and rainy; April, as elsewhere, is proverbially variable; and before June, phthisical patients should leave the island to avoid the sultry summer heat.

The diseases in which Dr. Liddell has observed the climate of Malta serviceable, in conjunction with the important preliminary sea-voyage to it, have been asthma connected with chronic bronchitis—scrofulous swellings and eruptions, dyspepsia and hypochondriasis, and that atrophy and disordered state of health, which are induced by over-active therapeutics. He considers the climate to be peculiarly conducive also to the health of the aged. Dr. Sankey has found it beneficial in chronic rheumatism. The mortality amongst Maltese children is enormous, from their scanty and improper food; but the Maltese women, when well fed, make excellent wet nurses, and the English children that are reared by them, or by their own mothers, thrive remarkably well in Malta. The diseases of children, such as measles, scarlet fever, and hooping cough, are comparatively mild.

When phthisis pulmonalis occurs among the English at Malta, Dr. Liddell thinks it is more rapid in its course than in England. In regard to its frequency among the Maltese, the late Dr. Hennen, according to Dr. Liddell, fell into an error, which has been perpetuated in the Army Medical Reports. It is the confounding of

[1] The temperature of the sea, at the depth of ten or twelve fathoms, was ascertained by Capt. Smyth to be 73° to 76° during the year.

pulmonary consumption with Maltese consumption, a disease which has no necessary reference to the lungs. Instead therefore of six per cent., cases of phthisis pulmonalis, according to Dr. Liddell's tables, do not exceed three per cent.[1]

The immunity of Malta from any endemic disease, the ordinary good health enjoyed by the natives, and by the English, as well as by persons from other countries resident there, and the actual state of the weather throughout the year, have given a character for salubrity to the climate. But from the statistical tables of Major Tulloch, it appears, that even as regards the indigenous inhabitants, Malta is by no means so healthy as Britain. It seems to enjoy only the average salubrity of the states of the south of Europe.

Strangers reside chiefly in Valetta, the capital of Malta, which is one of the finest towns in Europe. It is built on a declivity sloping from south to northeast. The principal streets run north and south, and are swept by the cold northerly winds. The houses are excellent, and the rooms large and lofty.

In Valetta, the inns are numerous and good; and there is no longer any difficulty in finding commodious lodgings, with Turkey carpets on the stone flooring, fires, and other English comforts. Country houses, with gardens and orange groves, may be readily obtained at short distances from the city. The markets are plentifully supplied, and at moderate prices. Valetta is abundantly provided with excellent water, brought from a spring six miles off by an aqueduct. The other places in the island are mainly supplied by rain water collected from the flat roofs of the houses, and kept in cisterns excavated from the solid rock. The principal streets, which are kept very clean, are either paved or macadamized, and readily dry after rain. The roads leading to the country, and round the harbours from Valetta, are kept in good condition, but they are of no great extent or variety. Saddle horses, and close or open carriages, can always be obtained at moderate prices; and there are few entire days in the winter without some hours of sunshine, in which delicate invalids, suitably clothed, may not take exercise with advantage in the open air, on foot, on horseback, or in a carriage. The Maltese boats are clean, commodious, and safe, and will be found, during the numerous calm and mild days of winter, to be the most agreeable vehicles for conveying delicate invalids round the harbours and fortifications, in which the great interest of Malta consists. The most desirable places in Valetta, for a *winter* residence, are those with a southern and eastern aspect, near the Barraccas, looking towards Floriana, or into the great harbour in Strada Levante.

Casal Lia, about three miles from Valetta, is, in Dr. Liddell's opinion, unexceptionable as a residence for phthisical invalids. It

[1] The investigations at present in course by my talented friend Dr. Galland, Professor of Anatomy and Clinical Surgery in the University of Malta, will soon set this question at rest. As far as they have been carried they support the opinion of Dr. Liddell.

is well sheltered, and is contiguous to the public garden of Sant Antonio. This extensive garden has a southeastern aspect, and is surrounded by a high wall, and the walks, which are paved with stone, speedily dry after rain. But with all these advantages, Dr. Liddell fears that suitable accommodation, with good English comforts for invalids, could not be obtained in Casal Lia, although the houses are generally large and good.

"No place," Dr. Liddell sums up, "that I have seen in the south of Europe, can, I think, compete with Malta, for a mild, dry, bracing air, in November, December, and part of January; and, during the other winter and spring months, I think, it is equal to any of them. I have been at them all in winter, except Nice."[1]

There are doubtless on the shores and among the islands of the Mediterranean, situations possessing climates equal to those of the places which have been noticed; but we are not sufficiently acquainted with their characters, and they are mostly deficient in those requisites which are as essential to an invalid as climate. In giving an account of the best climates of the Mediterranean, we have had in view the wants of the more delicate class of invalids. To those who are sent abroad for the prevention of disease, and the improvement of their health, the whole shores and islands of the Mediterranean are open. They may visit the south coasts of Spain, Sicily, the Ionian Islands, Greece, Syria, and Egypt; and, if their tour is conducted with judgment and discretion, their health may be more improved than by residing at any one of the climates mentioned. But the more delicate invalid must rest satisfied with such limited changes as have been pointed out in the preceding pages.[2]

SUMMER RESIDENCE ON THE CONTINENT.

For invalids who require to pass several winters on the Continent, it becomes a matter of importance to select a place where they may spend the intervening summers with the greatest advantage to their health. For those invalids who have passed the winter in Italy, two plans present themselves—either to recross the Alps, or to select the most favourable situation in that country. By the first, the invalid will escape the oppressive heat of an Italian summer; by the latter, he will avoid the inconveniences of a long journey. In deciding between these, in individual cases, various

[1] In drawing up the preceding account of Malta, I have been much indebted to the valuable communications from Dr. Liddell, who was physician to the Royal Naval Hospital in that island for twelve years, and whose statements and opinions are deserving of the utmost confidence. I would here also acknowledge my obligations to the sensible pamphlet by Dr. Sankey, already referred to.

[2] See article Pulmonary Consumption, p. 30.

circumstances will require to be considered, which admit of being noticed here only in a very general manner.

Consumptive invalids will do well to quit Italy; and I may observe that I comprehend in this class, not only those actually labouring under phthisis, but all such as are threatened by it. The summer heat of Italy will disagree with both—in proportion to the advanced period of the disease in the former, and to the deranged state of the general health in the latter. In both cases we generally find a weak and relaxed state of the constitution, accompanied, very often, with a morbid sensibility of the nervous system, in which great heat is always injurious. And when symptomatic fever or morning perspirations have shown themselves, these afford still stronger reasons against a summer residence south of the Alps.

Among this class of invalids some exceptions may, however, be found. Torpid constitutions, in which there is little nervous sensibility, and little disposition to febrile excitement, with a defective state of the cutaneous secretions, and a rigid rather than a relaxed state of fibre, may even derive advantage from a summer passed in one of the more healthy situations in Italy.

But the greater number of invalids who have derived benefit from the Italian climate, during the winter, will do well to quit it in the summer. This remark will apply more especially to those who labour under diseases of the nervous system, depending upon, or connected with, cerebral congestion; indeed, very few of this class of invalids should venture to pass even the winter in Italy, without carefully adapting their regimen to the nature of the climate. Likewise, in cases of irritation of the mucous membrane of the digestive organs, and in congestions of the abdominal viscera, with a deranged state of the functions of the liver, or a disposition to dysentery, the whole south of Europe will disagree during the summer.

The places principally resorted to by invalids, who pass the summer in Italy, are Naples, and its vicinity; Sienna, and the Baths of Lucca. These are the most eligible summer residences south of the Apennines: nor am I aware that any place superior to them in point of climate, and possessing the necessary accommodations for invalids, is to be found in the north of Italy.

The *Vomero* and the *Capo di Monte*, in the immediate vicinity of Naples, afford good situations for summer residences. Of the more distant places, *Sorento*, *Castelamare*, and the island of *Ischia* are the best. Sorento appears to be the coolest of these; for which it is chiefly indebted to its peninsular form, being a long narrow strip of land, having the bay of Naples on one side, and the gulf of Salerno on the other.

Castelamare partakes more of the climate of the Apennines, and affords also their usual shelter of chestnut trees. The air is less dry than at Sorento. From its northwestern aspect, and the mountains which rise immediately behind it, this place enjoys a long

morning shade; but its full exposure to the setting sun renders the evenings often oppressively hot.

At Cava, between Naples and Salerno, the air is said to be drier and cooler than at any of these places.

Sienna affords a healthy summer residence for persons who are not very liable to suffer from rapid changes of temperature, for such often occur here during the summer, owing to the high and exposed situation of the place. Sienna is considerably cooler in the summer, and much colder in the winter, than Naples, Rome, or Pisa. The mean annual temperature is 55°.60; being 6° less than Naples, and only about 5° more than London; but this arises from the coldness of its winter, which is only 1°.38 warmer than that of London. Its summer temperature is about the same as that of Capo di Monte at Naples, but 3° warmer than that of the Baths of Lucca. Its daily range of temperature is very great. It is a dry and healthy climate, and altogether a safe summer residence; and for nervous relaxed people, it forms a better summer retreat than either Naples or the Baths of Lucca, and like the latter place is exempt from mosquitoes. For persons disposed to, or labouring under pulmonary disease, however, Sienna is an unfavourable climate, at all seasons.

Baths of Lucca.—This little watering place, situated among the Apennines near Lucca, is much frequented during the summer; partly on account of its mineral waters, but more on account of the coolness of the situation. This last quality is its chief attraction to strangers. The mean temperature of the summer here is only about 6° higher than the summer of London. In the middle of the day, however, the heat is often oppressive; but the evenings and nights are cool and pleasant, and there are no mosquitoes. June, July, and August, constitutes the proper season at this place. Earlier than June, and after August, the air is damp, and unsuitable to delicate people. There is some variety of situation; the Bagni Caldi are on the brow of a high hill; the Bagni alla Villa are partly on the declivity of a hill, and partly on a plain; and the Pont' a Seraglio is in a valley on the banks of the little river Lima. The Bagni Caldi is the driest situation, and, when protected from the sun, also the coolest. The vicinity of the Bagni alla Villa is warmer, but quieter and more retired. The accommodations, which have been greatly extended of late years at all these places, are pretty good.

The rides on horseback about Lucca are beautiful and varied; but there is only one or two drives for those who require carriage exercise.

The preference to be given to any one of the places mentioned, will depend upon the particular circumstances of the case. Where sea-air is known to agree well, and where passive exercise on the water, or sea-bathing are advisable, some of the cooler situations in the neighbourhood of Naples afford the best residences. On the other hand, where there is much nervous sensibility, and when the

effects of the sirocco are likely to prove injurious, Naples and its vicinity ought to be avoided. The Baths of Lucca and Sienna should be preferred by such invalids, particularly the former, which is a very delightful summer residence.

The accommodations for strangers at Sorento and Castelamare have been greatly increased of late years—walks and drives formed, and bathing machines constructed. An English physician generally resides at these places during the summer.

The island of *Ischia* is also resorted to as a summer residence, and it may deserve a preference by some invalids, on account of its mineral waters. These are very abundant; indeed almost all the water of the island is more or less thermal, and mineralised. Dr. Adair Crawford, who resided a summer in Ischia, found that the heat during the day was moderated by regular sea breezes, and that the nights were very pleasant.

Switzerland.—Although I have not hesitated in advising invalids generally, and consumptive patients in particular, to quit Italy during the summer, I do not feel the same confidence in pointing out an unexceptionable residence elsewhere, more especially for the latter, during that season. Switzerland in point of convenience certainly affords one very eligible; but much caution and prudence are required on the part of invalids labouring under pulmonary affections who remain there. The alternations of temperature are rapid and very considerable. The difference between the day and night is great, and there is often a sharpness in the air which proves irritating to sensitive invalids.

Invalids may pass the summer in Switzerland with safety, provided they use ordinary prudence, and are careful to avoid unnecessary exposure to the vicissitudes of the weather. They should also content themselves with such excursions only as do not cause them to be over-fatigued, or heated at one moment, and exposed, while in a state of perspiration, perhaps, to a cold breeze the next; a thing which is constantly occurring during mountain excursions in Switzerland. They should neither take long fatiguing walks, nor climb steep mountains. They must not attempt to do every thing, and see every thing, like their more robust and healthy friends. In a word, they should not for a moment lose sight of the great object for which they are abroad, viz., the preservation and improvement of their health. Severe attacks of fever, and other acute diseases, are not uncommon consequences of imprudence of the kind alluded to, even among the most robust.

It will not, I hope, be supposed from any thing now stated, that I wish to throw obstacles in the way of young persons, threatened with consumption, taking exercise in the open air. This is so far from being my intention, that I think such persons can scarcely be too much in the open air. All I wish to inculcate is, that they should be careful not to convert the best of all preventives into a source of evil. For this class of invalids, riding on horseback is of all others the most favourable. I am convinced from experience,

that frequent and gentle motion through a mild atmosphere is one of the most soothing and invigorating measures which we possess for allaying an irritated and congested state of the mucous membranes of the lungs, and improving the general health.

The borders of the lake of Geneva afford, I think, the best situations for a summer residence in Switzerland; and the neighbourhood of Geneva is altogether the least exceptionable. Vevey is very hot during July and August. The higher situations about Lausanne are exposed to the north winds, especially the cutting Bise, which frequently blows in the evenings and nights after the hottest days of summer, producing a great and often sudden change of temperature. The low grounds between Lausanne and the lake are close and hot.

The subjects of pulmonary affections, who pass the summer in Switzerland, may try the effects of a course of grapes, "*Cure de Raisins*," a remedy, as already remarked, in high estimation in several parts of the Continent; but on this point the invalid will, of course, be directed by a physician on the spot.

I cannot close these few remarks on the choice of a summer residence without recalling the attention of the reader to the cautions I have already given on the subject of traveling. Unless a journey in hot weather is conducted with great circumspection, the irritation and excitement arising from it in susceptible systems, especially where any organ is in a state of chronic disease, however slight in degree, will do more mischief than any advantage that can be derived from a short residence in the best climate, or from the use of the most valuable mineral waters. It will be more advisable for such an invalid to remain quietly in a situation, even though not the most suitable to him, (but the inconveniences of which may, in a great measure, be obviated by prudence) than expose himself to the danger of having his disease increased by a journey in hot weather.

ATLANTIC CLIMATE.

Various islands in the Atlantic have been recommended as affording favourable winter retreats for invalids; Madeira, the Canaries, and the Azores, in the Eastern, and the Bahamas and Bermudas in the Western Atlantic.

It is to be remarked, that the climate of North America differs materially in its physical characters from that of Europe and Africa. The range of temperature is much greater; the changes more rapid and extensive; the summer heat much higher, and the winter cold much more intense under the same parallels of latitude, on

the American shores than on those of Europe.[1] The western is also more subject to storms than the eastern Atlantic. We shall find a corresponding difference in the climate of the islands under consideration, according as they approach the American or African Continents.

EASTERN ATLANTIC.

The islands of the eastern Atlantic, while they differ considerably in the physical qualities of their climate, differ still more remarkably in their structure, and external conformation, from those of the western Atlantic. The latter are low, arid, and mostly barren rocks, destitute of springs; the former, on the contrary, are lofty, and abundantly supplied with water, and covered with luxuriant vegetation; circumstances which, independently of their geographical position, influence the climate in a very material degree.

MADEIRA.

I shall commence my survey of the Atlantic Islands with Madeira. It is the most important and most frequented by invalids; and the character of its climate being the most fully determined, it will serve as a standard by which to estimate the climates of the other islands.

Madeira has been long held in high estimation for the mildness and equability of its climate, and we shall find on comparing this with the climates of the most favoured situations on the continent of Europe, that the character is well founded.

The mean annual temperature of Funchal, the capital of the island, is 64°56, being about 5° only above that of the Italian and Provencal climates. This very moderate mean temperature, relatively to its low latitude, arises, however, from the summer at

[1] The climate of North America is of that class which Buffon has designated Excessive Climates; that is, having exceedingly hot summers, and intensely cold winters, consequently an extensive annual range of temperature. The following comparison of a few places, having nearly the same mean annual temperature in the Eastern and Western hemispheres, will suffice to show this:—

PLACES.	Mean Ann. Temp.	Temp. of Summer.	Temp. of Winter.	Diff. of Winter and Summer.
Paris,	51°4	66°0	38°0	28°0
Cambridge, Amer.	50°4	70°5	34°0	36°0
St. Maloes,	54°5	66°0	42°0	24°0
Cincinnati,	53°7	72°9	32°9	40°0
Nantes,	55°6	70°7	42°2	28°4
New York,	53°8	79°2	29°8	40°0
Bourdeaux,	56°5	70°7	42°1	28°6
Philadelphia,	54°9	73°9	32°2	41°7

Madeira being proportionally cool. For, whilst the *winter* is 20° warmer than at London, the *summer* is only 7° warmer; and whilst the winter is 12° warmer than in Italy and Provence, the summer is nearly 5° *cooler*. The mean annual range of temperature is only 14°, being less than half the range of Rome, Pisa, Naples, and Nice. The heat is also distributed throughout the year with surprising equality, so that the mean difference of the temperature of successive months is only 2°41; this at Rome is 4°39, at Nice 4°74, at Pisa 5°75, and at Naples 5°08.

Whilst there is much equality in the distribution of temperature throughout the year, there is not less in the progression of temperature for the day, the mean range for the twenty-four hours being 10° by the *register* thermometer, while at Rome it is 10°, at Naples 13°, at Nice 9°, by the *common* thermometer, which gives the extremes observed during the *day* only.

The steadiness of temperature from day to day also exceeds that of all the other climates. In this respect, it is not half so variable as Rome, Nice, or Pisa, and is only about one third as variable as Naples. The degree of variableness from day to day at Madeira, is 1°11; at Rome it is 2°80; at Nice 2°33; and at London 4°01.

The annual range of atmospheric pressure is also very small, being about the same as that of Rome and Naples.

Nearly the same quantity of rain falls annually at Madeira as at Rome and Florence, but at Madeira there are only 73 days on which any rain falls, while at Rome there are 117. The rain at Madeira falls at particular seasons, chiefly in the autumn, leaving the atmosphere, in general, dry and clear during the remainder of the year.

From this comparative view of the climate of Madeira, it must be readily perceived, how great the advantages are which this island presents to certain invalids over the best climates on the continent of Europe. It is warmer during the winter, and cooler during the summer; there is less difference between the temperature of the day and night, between one season and another, and between successive days: it is almost exempt from keen, cold winds, and enjoys a general steadiness of weather to which the best of these places are strangers. During the summer, the almost constant prevalence of northeasterly winds, especially on the north, and the regular sea and land breezes on the south side of the island, maintain the atmosphere in a temperate state. The sirocco, which occurs two or three times, at most, during the season, and then continues for a few days only, (seldom more than three,) sometimes raises the thermometer in the shade to 90°.[1] With this exception, the summer temperature is remarkably uniform, the thermometer rarely rising above 80°. In consequence of the regular sea-breezes, the heat is not so oppressive as that of the summer

[1] The late Dr. Heineken never knew it raise the thermometer, in the shade, above 85°.

in England often is. Close, sultry days are little known in Madeira, and there is neither smoke nor dust to impair the purity of the atmosphere. Such, indeed, is the mildness of the summer at Madeira, that a physician, himself an invalid, who resided for some time on the island on account of his health, doubted whether this season was not more favourable to pulmonary invalids than the winter.[1]

Autumn is the rainy season; and towards the end of September, or the beginning of October, the rains commence, accompanied with westerly or southwesterly winds. In November the weather clears up, and generally continues fine and mild till the end of December. About this time some snow usually falls on the mountains, and rain at Funchal, attended by northwest winds, and the weather continues more or less damp through January and February; but fog is never seen, and even during this, the *winter*, the thermometer at sun-rise is rarely ever found below 50°.

The *spring* at Madeira, as at every other place, is the most trying season for the invalid, and will require even there a corresponding degree of caution on his part. In March, winds are frequent, and April and May are showery.

The mild character of the climate appears to be accompanied with a corresponding degree of health in the inhabitants of Madeira. The peasantry, though hard worked and badly fed, are a fine, healthy, and robust race. "The lower orders of Madeira," says Captain Basil Hall, "appear to enjoy a prodigious advantage over the higher classes in personal appearance—a distinction they owe no doubt, to those temperate and laborious habits of life, which probably they consider as any thing but good gifts of fortune. To our superficial glance, at least, the peasantry of that happy island seemed amongst the most cheerful people we had yet met with."[2] This island is almost exempt from the diseases peculiar to warm climates, and little subject to many of those which are common in more northerly countries. Intermittent and remittent fevers are said never to occur, and continued fevers are rare; croup seems to be unknown; calculous disorders are very unfrequent. The more prevalent diseases are cutaneous affections. Apoplexy is also a very frequent disease. Bowel complaints are very common, and often fatal; and dysentery is said to be frequently epidemic; indeed this disease may be said to be almost endemic, among the labouring classes; nor need this excite our surprise, when we consider their mode of living, which will be presently mentioned.

With respect to the prevalence of consumption among the natives of Madeira, there is a difference of opinion among those who have had the best opportunities of observing. "Though so highly beneficial in this disease, with the natives of other countries," says

[1] See an excellent paper by the late Dr. Heineken, in the Medical Repository, vol. xxii. 1824.

[2] Fragments of Voyages and Travels, p. 154. First Series. New edition, 1840.

Dr. Gourlay, "it is not to be concealed that no malady is more prevalent here than phthisis, with the natives of the island."[1] Dr. Heineken's observation leads him to a contrary conclusion. "It has been asserted," says this gentleman, "that no malady is more prevalent than phthisis with the natives of Madeira; but, as far as my own personal experience and the result of my inquiries go, I incline to a contrary conclusion."[2]

Since the first edition of this work was published, I have made particular inquiries respecting the frequency of consumption in Madeira, and I am satisfied from the information which I have received, that tubercular consumption (with which alone we have to do here) is a rare disease, compared with what it is in more northern climates. "With respect," says Dr. Renton, "to the question relative to the frequency of consumption among the natives, Dr. Gourlay (if he alluded to tubercular disease) has greatly overrated it. Tubercular phthisis occurs more frequently, perhaps, than might, *a priori*, have been expected in such a climate; and I have even known it, in a few instances, sweep off nearly whole families. But it is only necessary to take a cursory view of the habits and circumstances of the natives, to see that they enjoy a singular degree of exemption from a disease, to the ordinary causes of which a large proportion of them is constantly exposed."

The lower classes in Madeira are hard-worked and miserably nourished; their food consists chiefly of crude vegetables and hard-salted fish; they are badly clothed, and worse lodged; their habitations are low miserable huts, and their beds consist of pallets of straw, raised a foot or two only from the ground, damp during nine months of the year. That diseases of the lungs should be frequent under such circumstances is not surprising; and as these are generally neglected, or badly treated, they often prove fatal in a chronic form simulating phthisis. But even if tubercular consumption were a frequent occurrence under the circumstances which we have stated, it would afford no reasonable ground of objection to the climate of Madeira, for persons exempted from such palpable causes of disease.

In my inquiries respecting the influence of the climate of Madeira on disease, I shall confine myself to consumption, which is, indeed, almost the only disease on account of which Madeira has been resorted to. As I never resided at this island, I must rely on the information and opinions, which I have derived from other sources. On this subject, however, I have obtained so much assistance from Dr. Renton, who has long resided in the island, and from the late Dr. Heineken, who spent the last nine years of his life there, on account of a pulmonary disease, that the utmost reliance may be placed on the following observations. Both these gentlemen have

[1] Observations on the Natural History, Climate, and Diseases of Madeira. By William Gourlay, M. D. 1811.

[2] Op. Citat.

published valuable papers on the climate of Madeira, and its influence on consumptive patients. Their opinions regarding the propriety of sending such patients, in the advanced stage of the disease, to this island, are in perfect accordance with those I published on the subject, with reference to the Continent, twenty years ago.[1] And the results of their experience, given below, confirm in the most conclusive manner, the principles which are inculcated in this work, respecting the proper period of sending consumptive invalids abroad. They show the necessity of adopting change of climate as a means of *preventing*, rather than of curing consumption. Dr. Renton, in a sensible paper published in the Edinburgh Medical and Surgical Journal,[2] makes some judicious remarks on the "inutility, not to say cruelty" of sending patients in the advanced stages of consumption, to Madeira.

I give the following interesting and instructive table from Dr. Renton's paper. It is drawn up from the cases of which he had kept notes, during the preceding eight years.

Cases of Confirmed Phthisis . . .	47	
Of these died within six months after their arrival at Madeira		32
Went home in summer, returned, and died, . . .		6
Left the island, of whose death we have heard . . .		6
Not since heard of, probably dead		3
Total		47
Cases of Incipient Phthisis	35	
Of these there left the island much improved, and of whom we have had good accounts		26
Also improved, but not since heard of		5
Have since died		4
Total		35

"In the cases marked *Confirmed* Phthisis, there were copious purulent expectoration, diarrhœa, &c., and almost all of them terminated fatally.

"Some of those marked *Incipient* Phthisis were probably not fully entitled to an appellation so ominous. The subjects were generally young people who were said to have 'overgrown themselves,' and who had been liable in England to inflammatory attacks, having cough, &c. Others had suffered from neglected or mistreated inflammation, and in many there was a strong family predisposition to pulmonary disease. Most of them, I have little doubt, would now have been in their graves, but for the precautionary measure which was adopted."

[1] See "Notes on the Climate of France and Italy," &c., 1820.
[2] Vol. xxvii. 1817.

With respect to the consumptive cases which are likely to derive advantage from a residence at Madeira, Dr. Renton further remarks, "When it (consumption) has proceeded to any considerable extent, I should consider it the duty of a medical attendant not only not to advise the adoption of such a measure, but most earnestly to dissuade from it those who, from hearsay evidence of the recovery of persons in circumstances similar to their own, may feel disposed to fly to it as a last resource.

"That great and lasting benefit is to be derived even from a temporary residence in this climate, which is probably inferior to no other in cases where pulmonary disease is merely threatened, or where strong family predisposition to it exists, many living examples sufficiently prove. But even under such comparatively favourable circumstances, it ought to be strongly impressed on the mind of the invalid, that half measures are worse than useless, and that no advantage is to be derived from climate, however fine, unless it be seconded by the utmost caution and prudence on his part."

The result of Dr. Heineken's observations is quite in accordance with that of Dr. Renton.

Of the thirty-five cases reported by Dr. Heineken, several died before they reached the island, three within a month of their landing, and five or six in about six months. Of forty-seven cases of the same class of invalids in Dr. Renton's report, more than two thirds died within six months of their arrival in the island. This is a melancholy picture of the progress of consumption under all the advantages of the mildest climate; it shows, in a striking point of view, the necessity of discrimination in sending patients to Madeira, and ought to impress medical men with a deep feeling of the heavy responsibility which they take upon themselves in deciding on a question of such importance. By far the greater number of the patients, above referred to, ought never to have left their own country; the advanced period of their disease could leave no reasonable prospect of benefit from such a measure.

The result of the cases sent to Madeira at the proper period is very different. Of thirty-five cases of incipient or threatened phthisis, twenty-six were much improved, and probably a large proportion of them were ultimately saved.

While, therefore, the result of sending patients in an advanced stage of consumption to Madeira shows the inutility of such a measure, to say the least of it, the effects of the climate in incipient cases, and on those threatened with the disease, are highly encouraging, and should lead medical men to recommend such a measure at the time only when it promises benefit.

The following table, for which I am also indebted to Dr. Renton, while it shows the same result as regards confirmed cases of consumption sent to Madeira, exhibits the good effects of sending proper cases. It is also satisfactory to see that much the larger proportion of cases now sent are of the latter description.

Number of Consumptive Invalids who have arrived here from 1st January, 1838 to 31st May, 1840 . . .		182
With Tuberculous Lungs . . .	56	
Died here		30
Left the island		22
Still here		4
		56
Threatened with Pulmonary Disease .	108	
Remained free from symptoms		93
Fell off		13
Lost sight of		2
		108

For some time after the publication of the first edition of this work, Dr. Renton remarked that the proportion of invalids whose cases admitted of benefit from the climate was greatly augmented; but I have reason to fear that the successful issue of such cases has encouraged many to go to Madeira who would have found it better to remain at home.

When we take into consideration the mildness of the winter, and the coolness of the summer, together with the remarkable equality of the temperature during the day and night, as well as throughout the year, we may safely conclude that the climate of Madeira is the finest in the northern hemisphere.

The salubrity of this favoured island also,—its almost total exemption from endemic diseases, and the general mildness of the ordinary complaints, from which no climate nor situation is exempt, contribute to render Madeira a very desirable residence for all invalids who are in a condition to be benefited by a mild and equable climate.

There is no place on the continent of Europe with which I am acquainted, where the pulmonary invalid could reside with so much advantage during the whole year as in Madeira. On this subject I have already cited Dr. Heineken's opinion, which is of the greater weight, as he himself resided in Madeira in consequence of a pulmonary complaint. He found that he rather retrograded during the winter, but always gained ground during the summer. "Could I enjoy for a few years," he observes, "a perpetual Madeira summer, I should confidently anticipate the most beneficial effects." So high, indeed, is his opinion of the summer climate of Madeira, that he suggests the propriety of pulmonary invalids, who can conveniently accomplish such a plan, passing the winter in the West Indies, and the summer at Madeira. Of the effects of such a plan, however, Dr. Heineken does not appear to have had any experience.

The coolness of the summer at Madeira is a very fortunate circumstance for those invalids who ought to pass several winters

abroad, which is the case with by far the greater number of consumptive patients; and for whom it is very difficult to find a good situation during the summer on the Continent, even after a long and often tiresome journey. When it becomes requisite for a whole family to remove to a mild climate, this is a consideration of much weight, more especially when the members of such a family are chiefly females. In Madeira, the invalid has only to change his quarters from Funchal to a more elevated situation in the neighbourhood; or go to the north side of the island. This will be found a still more favourable summer residence, from its being under the influence of the northeast trade wind, which blows constantly there during the summer months, and affords a degree of coolness and freshness to which the residents on the south side of the island are strangers. There is now, in the parish of St. Ann's, an excellent house established for the accommodation of strangers,[1] and other houses are to be had. Dr. Renton says, "that from his personal knowledge of the place, as well as from the accounts of those who have lived there during the three warm months of summer, he has no hesitation in saying, that many whom he formerly recommended to leave the island on the approach of warm weather, and who would in all probability be obliged to return, or go elsewhere, the following winter, might have found a comfortable residence there, and by returning to Funchal, or its neighbourhood, at the proper season, secured the enjoyment of a wonderfully equal temperature during the whole year." The invalid may thus be saved a voyage or journey, and if he is prudent, he will often find that he has gained more in health during the summer than he did in the winter. "As a permanent abode," says Dr. Heineken, in a written communication to me, "I believe Madeira surpasses every other place, because it contains within itself the means of equalising the annual temperature more completely than any other spot with which we are acquainted. The *lowest* to which a thermometer exposed all night in a north aspect has ever fallen in Funchal during five years, is 50°, and the *highest* to which it will ever rise, at such a distance up the mountains as would in every respect suit an inva-

[1] This house is described by Dr. Macaulay, ("Notes on the Physical Geography, Geology and Climate of the Island of Madeira, in the Edinburgh New Philosophical Journal for October, 1840,") as situated in a district of great beauty, rich in plantations, gardens, and vineyards. Between Funchal and St. Ann's there is some of the finest scenery of the island. "Many artists," says Dr. Macaulay, "have endeavoured to delineate the scenery of Madeira; but by far the most successful attempt has been made by Mr. Picken, a young artist of great genius, who has resided for several winters on the island on account of his health. He has made some admirable paintings of the principal scenes, including the city of Funchal. To the geologist these will give a very good idea of the appearances and physical geography of the island, and will be generally interesting as representations of the most remarkable natural scenery in the world."

Mr. Picken's work is entitled, "Madeira Illustrated;" and is published by Day and Haghe, Gate Street, Lincoln's-Inn-Fields, London.

lid, need never exceed 74°. The sirocco visits us so seldom, and its heat may so readily be avoided by closing the doors and windows, that it need not be taken into account. The mean annual diurnal range is from 8° to 10°; but an invalid may with ordinary precaution, and without the aid of fires, live in a temperature never varying within doors more than perhaps 6° throughout the twenty-four hours. In a few words, I would say—there is no occasion for a person, throughout the winter in Funchal, to breathe, night or day, within doors, an atmosphere below the temperature of 64°; or in the country, and at such a height as to ensure dryness, above that of 74°; that he may during the summer take abundance of exercise by choosing his hours without ever exposing himself to oppressive heats; and that in the winter he need not be confined to the house the whole day either by wet or cold more perhaps than a score of times."

"I am acquainted with no place," says Captain Basil Hall, "in which such a variety of climates may be commanded with certainty as in this beautiful island—beautiful in every sense; for the scenery is so varied, that almost all tastes may be suited."[1]

The foregoing evidence is quite sufficient, I think, to show that where climate is likely to be useful in consumption, that of Madeira is preferable to any in the south of Europe; and Madeira has this important advantage over all other places frequented by invalids, as I have just remarked, that they may remain there during the whole year without suffering from oppressive heat, or being subjected to the inconvenience of a long journey. When such consumptive patients only are sent abroad, therefore, as ought to be sent, a proportion of them may pass the summer safely, and often even with advantage in Madeira, particularly on the northern side of the island. But perhaps a larger proportion would suffer from the summer heat even of Madeira, or at least would derive benefit from a cooler and more bracing air. The latter will generally be found among young, growing persons, and more frequently females of relaxed constitutions. To the more firm and rigid frame of the adult, in whom internal congestion is much more to be dreaded than relaxation, the summer at Madeira will often prove more beneficial than the winter.

But how proper soever it may be for an invalid who has passed the winter at Madeira to remain there during the summer, with a view of spending another winter,—a case will rarely occur in which it would be advisable to send a consumptive patient from this country to pass the summer in that island. An invalid, however, who has passed the winter in the West Indies, probably could not select a better situation for his summer residence than Madeira.

Although in my account of the climate of Madeira I have confined myself to its influence on consumption, there can be no doubt

[1] Fragments of Voyages and Travels, *first series.*

of its being highly beneficial in several other diseases noticed in this work, more especially scrofula and bronchial affections.

The only part of Madeira where invalids reside during the winter is Funchal, and its immediate vicinity, which is the warmest part of the island. This advantage it owes to its being open only towards the south, while it is in a great measure screened from the north by the central mass of mountains which rise immediately behind it in the form of an amphitheatre. Invalids peculiarly sensitive to humidity should live within the limits of the town, on account of its greater dryness. The steepness of the island renders wheel carriages useless; invalids must therefore ride, or be carried in palanquins or hammocks. There is abundance of horses, sure footed, and accustomed to the roads. There are some level spots near the town, where invalids may take exercise.

The soil of Madeira is dry, consisting mostly of the *debris* of volcanic rocks. Provisions of every kind are good and abundant, and the water is pure and of excellent quality.

Invalids intending to pass the winter in Madeira, should leave this country in October. The beginning of June is sufficiently early to leave the island to return home, as, before the middle or end of that month, the weather in England is seldom sufficiently warm, or at least steadily so, for a consumptive patient who has passed the winter in a mild climate.

Opportunities of going from this country to Madeira are very frequent. Independently of the regular traders to the island, many West India vessels, and the monthly packets to the Brazils, touch there on the outward voyage. About ten days may be considered the average time of making the passage; frequently it is less, and rarely exceeds fifteen days. The opportunities of returning from Madeira are, however, by no means so frequent; as comparatively few vessels touch there on their voyage to England. Yet I believe that in this respect much inconvenience is not experienced.[1]

CANARIES.

The Canaries group is nearer the African coast, and a few degrees further south than Madeira, from which they are about 200 miles distant.

[1] The reader who is desirous of obtaining information on the natural history, &c. of Madeira, is referred to the writings of Von Buch and Gourlay, to the very interesting work of Professor Daubeny on Extinct Volcanoes, Wilde's Narrative of a Voyage to Madeira and the Mediterranean, 1840, and to Dr. Macaulay's paper already referred to.

A small work, Rambles in Madeira and Portugal, contains much useful information, especially in the Appendix, on the Climate &c. of Madeira, written by the late Dr. Heineken. There has been recently published a small work, The Invalid's Guide to Madeira, by Mr. Cooper, which may be consulted with advantage. Mr. Picken's beautiful work, already referred to, also contains much useful information respecting Madeira, the conveyances to and from it, &c.

Teneriffe is the principal island and the only one of the group possessing accommodations for invalids. Above the range of cultivation, which is chiefly confined to the coast, the island is covered with laurels, arbutuses and pines, whilst the uppermost parts are bare and sterile.

Santa Cruz, the capital, is situated on the southeastern shore of the island, and is a clean, well-built town. The country around is dry and barren.

The mean annual temperature of Santa Cruz, is 70°.9; while that of Funchal, the capital of Madeira, is 64°5. This excess of temperature at Santa Cruz, is not equally distributed over the year; the difference between the summers, at the two places, being greater than between their winters. While Santa Cruz is 7° warmer than Funchal in summer, it is only 5° warmer in winter. The temperature is more equable throughout the year at Madeira; the difference between the mean temperature of the summer and winter being 9°.8, and at Santa Cruz, 12°.3. The heat during the summer is considerably higher in the Canaries than at Madeira; although it would appear that in this respect the summer temperature of Orotava, in the northern part of the island, differs little from that of Funchal and its vicinity.

The climate of Santa Cruz possesses some advantages during winter, in point of temperature and dryness, over that of Funchal, but there are no accommodations for invalids. There are a few places fit for carriage or horse exercise, particularly the terrace leading from Santa Cruz to the Lazaret, which is about a mile long, and broad enough for a couple of carriages to drive abreast. Mosquitoes are found at Santa Cruz during the whole year.

Orotava is a town on the northwestern side of the island, twenty-five miles from Santa Cruz, standing at the foot of the mountain, on ground gently sloping towards the sea-shore. It is surrounded by vineyards and cornfields. The country immediately behind is described as very beautiful, and the roads, though steep, are not so precipitous as those of Madeira. Orotava is cooler, but not so dry as Santa Cruz. The climate, at an elevation of several hundred feet above Orotava, is described as very equable during the whole year. As a residence for invalids, Orotava possesses many advantages over Santa Cruz, in point of accommodations, roads, and beauty of country. The invalid residing at Orotava might, by changing his residence to a more elevated site, remain throughout the summer, without suffering much inconvenience from the heat, and he might pass the winter months in the warmer and drier climate of Santa Cruz.

Laguna, the former capital, which is situated at some elevation above Santa Cruz is cooler, and might form a good summer residence.

Were the accommodations for strangers at Teneriffe, and the means of communication between it and Madeira more frequent,

many invalids might benefit greatly by passing the winter partly at Funchal and partly at Santa Cruz.

The following table of the temperature at Orotava, although for one year only (1834) is deserving of a place here, in the absence of more extensive data. The observations were made with a register thermometer, by Mr. Charles Smith, who has resided several years on the island.

Months.	Mean Minimum.	Mean Maximum.	Mean Temperat.	Mean Variation.	Months	Mean Minimum.	Mean Maximum.	Mean Temperat.	Mean Variation.
Jan.	55	68	61½	13	Sept.	66	77	71½	11
Feb.	56	65	60½	9	Oct.	65	77	71	12
March,	59	69	64	10	Nov.	62	74	68	12
April,	60	71	65½	11	Dec.	60	71	65½	11
May,	63	75	69	12					
June,	65	77	71	12					
July,	66	78	72	12	Means for the Year.	62	73⅓	67	11⅓
Aug.	67	78	72½	11					

AZORES.

The Azores, or Western Islands, lie in the midst of the Atlantic Ocean, about five degrees further north, and considerably more to the westward than Madeira. Of volcanic origin, they rise abruptly out of the water, and present numerous mountains, covered to the very top with perpetual verdure. The conical mountain, which gives name to the island of Pico, and which is about 8000 feet high, has its summit often covered with snow during the winter and spring.

St. Michael's is the largest of the Azores, and, with the exception of the little island of St. Mary's, the southernmost of the group. It is of an irregular oblong form, and extends from west to east rather more than forty-eight miles; its greatest breadth is eleven and its least six miles. The extremities of St. Michael's are mountainous; the eastern end the most so; the highest points rise three or four thousand feet above the level of the sea; the intermediate part is hilly. The soil consists of pumice, volcanic clay, and other decomposed volcanic products, lying upon horizontal strata of basaltic lava.

The chief town of the island is Ponta Delgada, containing upwards of twelve thousand inhabitants. The surrounding country is for many miles tolerably level, and the roads fit for carriages. Asses, for riding and carrying burdens, may be hired for a small sum. Horses and carriages are kept by private individuals.

Consuls for Britain and America, and many English and American merchants, reside at Delgada, and there is a Protestant episcopal chapel and chaplain. Furnished lodgings are not to be had, but houses may be rented at a moderate sum: there are two boarding houses.

Villa Franca, another town on the southern coast of St. Michael's, twelve or fifteen miles to the eastward of Delgada, is more pleasantly situated, being protected behind from the northeast winds by a range of mountains. It has a sandy beach, and its neighbourhood is not so much obstructed by the high walls of orange gardens as that of Delgada. It contains about four thousand inhabitants, but there are no English residents. The soil is a light porous pumice, of from ten to fifty feet in depth, covering the horizontal strata of lava. The heaviest rains are speedily absorbed, so that the roads are left dry. The water which filters through this pumice soil is very pure and abundant.

There are no express accommodations for invalids, but houses may occasionally be hired.

The mean in-door temperature of a room without fire, carpet, or curtains, in Villa Franca, during the period from December 1838 to April 1839, was 60°.9, with a mean range of 3°.6. The mean out-door temperature, during the same time, was 60°.10, and the mean daily range 7°.6. The highest point to which the thermometer rose in the shade, between eight o'clock in the morning and ten at night, was 76°, and the lowest point to which it sank was 51°. Thus, the mean temperature during the winter is about 2° colder than Madeira. It is to be remarked that the averages out-of-doors were not taken with the register thermometer; they, however, approximate the truth, and prove, what is evident to the feelings of the visiter, that the temperature is remarkably steady, ranging little from day to day, and varying little between day and night. Dr. Bullar remarks, "that to his feelings it was always warmer out of doors."

The monthly average of days on which rain fell in Villa Franca, during the period above specified, was ten. This estimate, however, affords little direct information as to the humidity of the climate. The rain on some days was nothing more than a mountain scud, of a few minutes duration; and, at other times, it fell for several hours; but, during the whole five months, there was not a day in which many hours were not available for exercise in the open air. At the same time, the humidity of the atmosphere is so great, that boots grow mouldy in a few days, kid gloves become spotted, books feel damp, and clothes, not constantly worn, have a musty smell. To prevent these inconveniences, the inhabitants frequently expose their clothes to the sunshine. Salt fish soon spoils, so that no quantity is ever kept, and no salt is made in the islands.

The prevalent winds were in December northeasterly; in January, February, March and April, southerly. The southerly and westerly winds are soft and warm. The northeasterly are cold, but not keen. The sirocco is never felt at the Azores. Gales and stormy winds blow from the southward and westward, and are not unfrequent.

	Register Thermometer within doors.				Thermometer in the open air at four hours of the day.						Days when rain fell.	Days with southerly winds.	Days with N. E. winds.	Prevailing winds.
	Max.	Min.	Med.	Ran.	A. M. 8	P. M. 1	P. M. 6	P. M. 10	Med.	M. daily range.				
Dec.	60	57	58.5	4	55	63	52	58	57	5	17	12½	10	N.E.
Jan.	63	60	61.5	3	60	64	58	58	60	9	13	17½	10½	S. E.
Feb.	63	60	61.5	3	63	66	60	58	61.25	8	10	25½	1½	S.W.
March	64	60	62	4	61	66	61	60	62	6	14	21½	2	S.W.
April	63	59	61	4	62	66	59	56	60.25	10	. .	. .	. .	S. E.
Mean	62.6	59.2	60.9	3.6	60.2	65	58	58	60.18	7.6	10.8	19.25		

The islands of Terceira and Fayal, next in importance to St. Michael's, are about 160 miles to the northwest of that island, in the centre of the group, together with three others, Pico, St. George, and Graciosa. From what he heard, Dr. Bullar thinks Fayal damper than St. Michael's.

The principal town of Fayal is Horta, pleasantly situated on the east side of the island, on rising ground sloping down to the margin of a fine bay. It contains several thousand inhabitants, many Americans and their consul, besides an English consul and physician. There is a boarding house, and houses may be rented. The country around affords a considerable variety of pleasant walks and rides.

There is constant communication between the Azores and England, during the winter, when the oranges are exported. The communications between the different islands is frequent after March, but uncertain during winter.

In all the islands, poultry, eggs, and fish are abundant and cheap. In the chief towns, beef and mutton can be procured, as well as milk and butter. The bread is light and good. The wines indifferent, but unadulterated.

Water at St. Michael's is good and abundant. The soil when cultivated, is rich and productive. The whole of the islands abound in fine scenery, but there is a deficiency of trees, though not of vegetation.

The climate of this group of small islands, situated in the centre of the Northern Atlantic, nearly equidistant from the poles and the equator, and surrounded on all sides by a vast extent of ocean, is purely oceanic, and affords one of the best examples of a mild, humid, equable climate to be met with in the northern hemisphere. It is slightly colder and more humid than Madeira, but probably even more equable.

In diseases in which a soft, soothing climate is indicated, that of the Azores will prove beneficial; in gastritic, or inflammatory dyspepsia, and in bronchial irritation, accompanied with little secretion. On the other hand, in a relaxed state of the system—in those morbid conditions of the mucous membranes, attended with copious

discharges—and in an enfeebled state of the digestive organs, (atonic dyspepsia,) it will decidedly disagree.

There are many cases of a mixed character, where irritation of the mucous surfaces co-exists with a relaxed state of system. In such the climate may prove beneficial for a time, but as soon as the state of irritation is abated, its relaxing effects will prove injurious. A removal to a drier and more bracing climate would then be desirable and even necessary.

The most prevalent disease among the natives is gastrodynia, or a painful affection of the stomach; a dull, continuous pain, lasting many hours. This is not surprising when the principal food of the poor (whose diseases were those which chiefly fell under the observation of Dr. Bullar) consists of cabbage and potatoes chopped up with a little lard. Painful affections of other parts are next in frequency; rheumatic neuralgia, lumbago, sciatica, neuralgic pains of the face, neck, and arms, hemicrania and loss of power, partial paralysis. Of acute diseases, bronchitis was the most frequent; asthma also prevailed; phthisis is very rare.[1]

Comparing Madeira, the Canaries, and the Azores, it will be observed that, although in some circumstances they are alike, they are very dissimilar in others. They have the same form and geological structure, being all mountainous and of volcanic origin, but differ materially in their vegetable productions, and in the character of their climate, both as regards humidity and temperature. There is a gradual transition from the humid, soft, equable climate of the Azores, of which the mountains are covered to the very summit with evergreens, to the arid, rocky soil of Teneriffe where the want of rain during the greater part of the year renders much of the island dry and sterile. Madeira, situated considerably more to the south than the Azores, and more distant from the African coast than the Canaries, presents an intermediate climate in comparison with these two groups. Less humid than the Azores, and less dry than Teneriffe during the winter, it has the advantage of a cooler summer than either. This it owes chiefly to its being within the limits of the trade winds during the hot season.

A change from the Azores to Madeira, and from thence to Teneriffe, would, in many cases, prove more beneficial than a residence during the whole winter in any one of these islands.

[1] For the above account of the Azores, I am indebted to my friend Dr. Bullar, who passed the winter and spring of 1839–40 there; and who, in conjunction with his brother, has just published an interesting work descriptive of these islands, entitled, "A Winter in the Azores."

WESTERN ATLANTIC.

BERMUDAS.

The Bermudas consist of a cluster of small, low islands. The largest is only twelve miles long, and about three broad; and the whole extent of the group, from one extremity to the other, is not more than twenty miles. The highest point of land in any of the islands does not exceed 200 feet above the sea level. They are composed chiefly of a coarse, shelly sand-stone of an extremely porous quality, and so soft as to be cut easily with the saw and adze into the various forms necessary for building, &c. From the absorbing nature of the Bermuda rock, the soil, which is naturally thin, is extremely arid. There are no springs, the inhabitants being almost entirely dependent upon rain water, which is collected on the roofs of the houses, and by other artificial means, and preserved in stone cisterns, called *tanks*. The water is generally good, but the supply is occasionally deficient in very dry seasons. Although the Bermuda islands are low, they are by no means flat, the surface being of an undulating and even hilly character. The high grounds are mostly covered with cedar trees, which, while they form a peculiar feature, are the most beautiful ornament of these islands, and, at the same time, their most valuable production. But there can be no doubt that Bermuda might be made much more productive by proper cultivation; as has indeed been proved during the non-intercourse with America. It is, however, in general, supplied with provisions from the United States and our North American colonies.

TABLE of the Range of the Thermometer at St. George's on an Average of Five Years:—

MONTHS.	THERMOMETER.			DIURNAL RANGE.		
	Max. deg.	Med. deg.	Min. deg.	Greatest. deg.	Mean. deg.	Least. deg.
January	72	65¾	55	8	4	1½
February . . .	71	64⅔	53	10	5⅔	1
March	72	65	54	9¾	4⅓	1½
April	71	64¾	56½	10	5½	1½
May	75	70	57	11	6¼	2
June	86	79	68	10	7	3
July	89	83½	75	12	7½	2
August	89½	83	75	12	8	1
September . .	87	82½	74	9	6	4
October	86⅓	76¼	65	10	4⅘	1
November . . .	82	76½	64	7	4	0½
December . . .	76	69⅓	56	8	4½	0½
Mean	79¾	73½	63	9½	5⅔	1⅔

From the small size and little elevation of the Bermudas, they are fully exposed to winds from every quarter, and are under the

immediate influence of all the changes which occur in the atmosphere of the surrounding ocean; which, as we have already remarked, is more liable to great and rapid changes of temperature, and more subject to storms than the Eastern Atlantic.

Bermuda may be considered upon the whole a healthy place. There are no endemic diseases, although occasionally, during the autumn, fevers of a character resembling those which form the scourge of the West Indies, prevail with considerable violence; but this is by no means an annual occurrence. Bowel complaints are the most common diseases. Consumption is also frequently observed among the inhabitants; and it appears from the Army Reports that inflammation of the lungs and consumption are very prevalent among the troops stationed there. The ratio of mortality from consumption being nearly nine per thousand of the strength annually, which is more than among the troops in the United Kingdom, or in any of the Mediterranean stations.

The cool season, that is, from October till May, is the most healthy, and the only part of the year during which this climate is at all suited to invalids. One of the principal objections to Bermuda, as a winter residence for pulmonary invalids, is the prevalence of strong winds; which are such as to justify the epithet applied by Shakespeare to these islands, "the still-vexed Bermoothes." Of these winds the damp, oppressive southwest is the prevailing; but the most violent and injurious to delicate invalids during the winter and spring, are the northwest winds which are generally dry, sharp, and cold. Compared, however, with the climate of the coast of America, under the same latitude, Bermuda may be said to have no winter. The summer is very hot; being generally admitted, I believe, by those who have experienced both climates, to be more oppressive than the same season in the West Indies. This may be accounted for, partly from the want of the trade winds, and partly from the bare, arid nature of the soil, which becomes quite parched during the summer. Vegetation almost disappears at this season; the cedar and wild sage alone resisting the heat. Dew is occasionally deposited in winter, when a cold night succeeds a hot day, but never in the summer. The principal fall of rain is between August and October; there are also very heavy showers in January and February, but seldom any during the summer months.

From what has been stated, a tolerably accurate opinion may be formed respecting the general qualities of the climate. It is variable and windy during the winter, and hot and oppressive in the summer. Compared with Madeira, which lies in the same parallel of latitude, the climate will be found much more unequal. The temperature of the two places during the winter may be much the same; but there is a wide difference in that of summer. The coolness of this season at Madeira forms a striking contrast with the oppressive heat of Bermuda.

With so few advantages in point of climate, the Bermudas are not likely to become the resort of invalids from this country. Their

great distance, the infrequency of communication with England, and the defective accommodations for strangers, form additional objections. Provided, however, that domestic circumstances rendered Bermuda a convenient residence, invalids might pass the winter there safely, and perhaps with benefit. There are many beautiful spots in these islands, where, protected from the northerly gales by the cedar-clothed hills, the invalid might find sufficient space to enjoy exercise in the open air, almost every day during the winter. The neighbourhood of the little town of Hamilton, situated nearly in the centre of the islands, affords perhaps the most favourable situation for such a residence.

BAHAMAS.

Were we to consider the latitude only of these islands, they might almost be classed with the West Indies, as they are on the very limits of the tropics; but their vicinity to the American continent so modifies their climate, as to give it a different character from that of the intertropical islands. The Bahama islands form a very numerous group, of which about twelve are of considerable size. They are all low, and chiefly of coralline formation. They contain no natural springs, water being procured only by digging deep wells; and, in many places, the water thus obtained is not good.

The easterly, or trade wind, although the prevailing wind, is much less regular here than in the same latitude on the eastern side of the Atlantic. Southerly winds, which are hot and oppressive, often occur, and are generally accompanied with a heavy deposition of dew during the night. The northwest wind frequently prevails; and as this wind blows with very considerable force, it produces a rapid fall of temperature, more especially when it immediately follows a southerly wind.

The following table shows the monthly range of the thermometer at Nassau, on an average of five years,—1830 to 1834 inclusive:—

Months.	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov	Dec.
Max. .	77½	76	80½	83	86½	89	92	90	89	83½	79	76½
Med. .	71	73	75	79	81½	84½	86	86½	85	79	73	70
Min. .	66	69½	69	75½	77	80	83	83	81	73½	67	63½

Average,—Max. 83½, Med. 78½, Min. 74.

From May to November the range of the thermometer is from 75° to 85°, seldom rising above 90°. This increase of temperature is generally accompanied by southerly winds or calms, which are described as being very oppressive.

According to these tables, the mean annual temperature is 78½°; and the range 28½°; viz., from 63½° to 92°. In the West Indies,

the former is 80°, the latter 20°. The temperature of the seasons is as follows: winter 71°, spring 77°, summer 83°, autumn 80°. At Barbadoes, the winter is 76°.7, spring 79°, summer 81°, autumn 80°. From this comparison it appears, that while the winter is nearly 6°, and the spring 2° colder, the summer is 2° *warmer* than at Barbadoes: the autumn temperature at both places being the same. The explanation of the high temperature of the Bahamas, during the two latter seasons, is probably to be found in the frequent occurrence of southerly winds during that period of the year, and in the less degree of regularity of the trade winds at these islands than within the tropics. In the winter and spring, however, the temperature is considerably lower, and this is the period of the year which chiefly interests us in our present inquiry.

At New Providence, the weather, during the cold season, which extends from November to May, is generally fine, clear, and dry; the thermometer in the shade being generally from 60° to 70°, the mid-day heat tempered by a constant breeze, and the evenings cool and agreeable.

The Bahama islands, generally speaking, are not unhealthy; although there is a considerable difference in this respect between the different islands. That of New Providence, in which is the capital, Nassau, the only town in the colony, is not by any means one of the healthiest, on account chiefly of some swampy ground which it contains. The small island, called Harbour Island, close to Eleuthera, one of the largest of the group, is esteemed particularly healthy, and forms the chief resort of invalids and convalescents from New Providence. There are several other healthy spots, as on the island of Abaco; but at all these places there is a great deficiency of accommodations, and moreover, they are sixty miles distant from Nassau, the only place where medical advice is to be found.

The most prevalent diseases, are fevers, chiefly of the intermittent and remittent character, and bowel complaints; cholera is not uncommon, and occasionally the Bahamas are visited by epidemics of yellow fever; but the two first mentioned diseases are by far the most prevalent.

From the above description, it appears evident that the Bahama islands are not well calculated for the generality of invalids. The climate is not suited for consumptive patients, on account of the rapid changes of temperature, and the prevalence of winds, often of a dry, cold character. At the same time persons, for whose cases a warm climate is indicated, may pass the winter in the Bahamas safely; and residents in the West Indies might derive considerable benefit by a change to these islands for a few months during this season. The wet and dry seasons occur pretty regularly at the same periods of the year, as within the tropics. The same rules which are laid down, in the article on *The West Indies*, respecting the arrival and departure of invalids, and the conduct to be observed

during their residence, are generally applicable to those visiting the Bahamas.

THE WEST INDIES.

I consider it necessary to notice the West India Islands, because they are occasionally recommended as a winter residence to patients labouring under pulmonary and some other chronic diseases; and because their climate, either as regards its physical characters or its influence on disease, does not seem to be generally known or understood by medical m in this country.

The mean annu emperature of the West India Islands near the sea, is about or 80°; the mean daily range about 6° only; and the extreme annual range not more than 20°. The mean temperature of the sea at considerable depths in the vicinity of these islands is 80°; and this is also the temperature of the springs near the level of the sea in Jamaica, as noticed by Dr. Hunter.[1] The mean temperature of the seasons, according to the European division adopted in this work, is at Barbadoes as follows—winter, 76° 7; spring, 79°; summer, 81°; autumn, 80°.

The above applies to the whole of these islands near the level of the sea; the difference in different islands being scarcely worth remarking. The mean temperature of Barbadoes, according to Hillary, is 79° 3; the greatest range in six years being 17°, viz. from 70° to 87°; and Dr. Thomas makes this 18°, viz. from 70° to 88°. Sir Gilbert Blane once found the thermometer in this island at sun-rise, in December, at 69°.[2] Dr. Hunter observed it once only at the same degree; and twice only as high as 91° in Jamaica.[3] The greatest range which I find noticed by any author at the sea level is 22°, viz. from 70° to 92.° Dr. Fergusson says, the mean daily range in summer is from 80° to 86°, and in winter from 70° to 80°. The mean temperature of Grenada, at noon, according to Dr. Chisholm, is 84°, and at seven A. M. 78° 5. This gentleman gives the following, as the diurnal progression of temperature:—"The thermometer (Fahrenheit's) almost universally exhibits the following movements. At seven A. M. the mercury begins to rise, and continues to do so till one P. M., from which time till four P. M. it is stationary. It then begins to fall, and continues to do so till ten P. M., from which time till seven A. M. it is again stationary. This routine of temperature is disturbed only when any remarkable change takes place in the atmosphere, such as much rain attended with strong wind: the greatest change from this cause I have observed is 10°, the least 4°. The thermometer, exposed to the direct rays of the sun, has risen in ten minutes to 130°, or 42° above its stationary point at one P. M. of that day; 30° may, however, be considered the medium difference between the heat in the shade

[1] Observations on Diseases of the Army in Jamaica.
[2] Diseases of Seamen. [3] Op. citat.

and in the sun.[1] The medium difference between the heat of the atmosphere at one and ten P. M. is 9°."[2] At Jamaica, Dr. Arnold always observed the mercury begin to rise about 10 or 15 minutes before the sun emerged from the horizon. Its ascent was gradual until it reached its maximum, which generally happened between two and four P. M. He tried many thermometers for the purpose of ascertaining the extreme solar heat, and often observed the mercury rise to 130° Fahr. in the month of September.

The winter, and early part of the spring, are in general remarkably dry, and the weather fine; the wind being more northerly than usual. The summer is dry and hot; and autumn the season of the heavy rains; but there is seen little of that continuous rain which occurs in temperate climates. The annual fall of rain is probably about 65 inches;[3] but in the quantity of rain which falls in the different islands there is a much greater difference than in their temperature. In the mountainous islands, generally, the fall much exceeds that in the low islands. At Martinique, for example, the fall is said to amount to 100 inches; while at Barbadoes, according to Hillary, it is 58; and at Antigua only 45 inches. The greatest fall of rain takes place in October. In November the weather generally begins to clear up, the northeasterly winds resume their regularity; and from the beginning of December till the vernal rains of April and May, the weather is dry, settled, and comparatively cool.

From the rapid manner in which the rain descends within the tropics, a large proportion of it is carried off in torrents, and it must be remembered that the evaporation is extremely rapid. At Antigua it amounted, in 1818, to 28·26 inches, the fall being 65. The evaporation in the different seasons was as follows:—Winter, 6·26; spring, 6·99; summer, 8·09; autumn, 7·06; leaving unevaporated—

[1] This great increase of temperature is not produced by the direct power of the sun's rays, but is caused chiefly by the concentration and reflection of heat from the surface of the earth. If the influence of reflected heat be avoided, the difference between the sun and the shade amounts, in the West Indies, to a few degrees only. Baron de Humboldt often endeavoured to measure the power of the sun between the tropics by two thermometers of mercury perfectly equal, one of which remained exposed to the sun, while the other was placed in the shade. The difference resulting from the absorption of the rays in the ball of the instrument never exceeded 6° 6 Fahr.; sometimes it did not even rise higher than one or two degrees. Mr. Daniell's observations go far to show "that the power of solar radiation in the atmosphere increases from the equator to the poles, and from below upwards."—*Meteorological Essays and Observations.*

The temperature in the shade often rises higher in northern latitudes than in the West Indies. It is the duration of heat much more than its intensity, as Humboldt justly remarks, which characterises the climate of the tropics. And I may add, that it is this unceasing heat which is one of the principal causes of the injurious influence of tropical climates on European constitutions.

[2] Manual of the Climate and Diseases of Tropical Countries, &c., by Colin Chisholm, M. D.

[3] Edwards gives from 60 to 65 inches as the average fall throughout the whole islands.—*History of West Indies*, vol. i. p. 12.

winter, 5·41; spring, 6·22; summer, 6·39; autumn, 19·53. I am not aware of any series of hygrometrical observations having been made in the West Indies.[1] In the lower islands little dew is deposited; but in the higher islands, where the range of temperature is greater, dew falls in considerable quantity, but still in a very small proportion when compared with the opposite continent of America. In Jamaica dew is often heavy, and Dr. Melville informs me that it is not unfrequent in St. Vincent's.

The range of atmospheric pressure is remarkably small. At Antigua, in 1818, this amounted to half an inch only; and, according to Dr. Chisholm, it does not exceed an inch in any year.

From the small size of the greater number of these islands, there do not occur the regular alternations of land and sea breezes which prevail generally in tropical climates, but the same circumstance admits of the influence of the easterly, or trade wind, without intermission. This wind prevails, with great regularity, for nine months of the year. During August, September, and October, the trade winds are much more irregular, but still the prevailing wind is decidedly the east. It is chiefly owing to the full influence of the trade wind that the climate of the West India Islands is not only tolerable, but infinitely more agreeable than Europeans who have never visited them can possibly imagine, when the temperature, as indicated by the thermometer, is alone considered. It would appear from a register now before me, kept on board one of H. M. ships, that the temperature of the air at sea is very nearly the same as on the small islands.[2]

We have now to inquire into the influence of this climate on disease, and more especially upon *Consumption.*

Respecting the prevalence of consumption in the West Indies, there exists considerable difference in the statements of those who have had ample opportunities of observation. Dr. Musgrave remarks of the occurrence of phthisis among the whites, that the subjects of it are almost invariably of families in which hereditary predisposition has been long established. Amongst the blacks, Dr. Musgrave's patients have been chiefly native Africans, disbanded soldiers for example, or their immediate offspring; the creole negro of many generations being comparatively free from pulmonary disease of every kind.

On the other hand, it appears from the Army Reports, that nearly twice as many cases of consumption originate among our troops in the West Indies as at home; twelve per thousand of the aggregate strength of our troops serving in the West Indies being attacked annually, while of the Dragoon Guards serving in Great Britain,

[1] I am informed by Dr. Musgrave that such are now in progress of being made by his colleague Dr. Nicholson.

[2] In this journal, the temperature of the sea-water is often noted in the harbours, and at great distances from land, at various depths short of 100 feet. It varied from 76° to 83° 5. On one occasion the temperature of a torrent of rain as it fell, is marked 77°, the temperature of the air being 78°.

the proportion is only six and a half per thousand. The disease, according to the same reports, is even of more frequent occurrence among the black than the white troops.

If we have found cause to condemn Italy as a summer residence for consumptive patients, there seems no just reason why we should commend the West Indies, even in winter, the temperature of which is above the summer temperature of any place in the south of Europe.

More extended experience, and more accurate observation, however, than has hitherto been applied to the cases of pulmonary invalids sent abroad, can alone enable us to speak positively on this point. In the mean time, every thing that we know regarding the nature of consumption, and the influence of a high temperature on it—supported by our practical experience of the effects of the climate now under consideration, bear us out in laying it down as a general rule, that the climate of the West Indies is an improper one for patients with tuberculous disease of the lungs.

As my own personal experience on the subject is rather limited, it may be as well to notice the opinions of those whom a residence in the West Indies has afforded ample opportunities of judging. Dr. Hunter, speaking of Jamaica, observes:—"Pulmonary consumptions rarely originate in the island, but those who come from England with that complaint already begun, are not benefited by the warmth of the climate; on the contrary, the disease is precipitated, and proves sooner fatal than it would have done in a more temperate air. Of this we had repeated examples among the soldiers, several of whom arrived in the island with *beginning* consumptions, and were all quickly carried off by that disease."[1] Dr. Musgrave and Dr. Arnold agree in this opinion; and Dr. Chisholm states, that catarrh, pulmonic inflammation, and phthisis pulmonalis, are very frequent in the West Indies; that these diseases are very rapid in their progress; that when phthisis is fully established, there is no safety in remaining in the climate. A sea voyage, and temperate or cool climate, presents then the only, or at least the best, chance of life.[2] The opinions of Dr. Fergusson, Sir Alexander Dickson, and Dr. M'Arthur are equally strong on this subject; and these gentlemen, as well as Dr. Chisholm, had peculiar opportunities of observing the effects of climate on a very large scale. Dr. Fergusson had the direction of the army medical department in these islands for several years; Sir A. Dickson was physician to the fleet in the West Indies six years, and Dr. M'Arthur had charge of the Royal Naval Hospital at Barbadoes for six years. It was customary in our navy at that time to draught seamen, labouring under chronic pulmonary diseases, into ships going to the West Indies; and it was constantly observed, that the progress of consumptive cases, to a fatal termination, was much more rapid than is generally observed

[1] Op. citat. [2] Op. citat.

in more temperate climates.[1] Dr. Fergusson remarked the same thing among the military; the disease, to use his own words, "resembling, in its progress, an acute rather than a chronic affection;" and Sir A. Dickson's language is equally strong on this point.

It is unnecessary, I presume, to adduce further evidence to prove the injurious effects of the West India climate on confirmed consumption.

The next point for consideration is the influence of this climate on persons predisposed to consumption. Those who have had the best opportunities of judging, are in favour of it as a prophylactic means. Dr. Fergusson who had extensive opportunities of observing the influence of the climate upon our troops, and Dr. Melville who has long practised in St. Vincent's, are of this opinion. Dr. Musgrave, who has practised twenty-six years in Antigua, says, that it has never fallen to his lot to see a single case of consumption commencing in a European, whether hereditarily predisposed or not, who had arrived in the West Indies in perfect health. Dr. Arnold found the climate of Jamaica very favourable to young persons from fifteen to twenty years of age, hereditarily predisposed to consumption.

Dr. Jackson, of Boston, U. S., whose experience has been somewhat large, thinks favourably of the West Indian climate in consumption; but he does not define the periods of the disease in which he finds it most useful. He sends patients chiefly to Cuba; there to remain till the last of April; then to change to Georgia, or South Carolina, and to return to Boston very slowly, so as not to reach New England till the end of June.

Much will depend upon the nature of the constitution—whether it is such as is calculated to bear a tropical climate well, or likely to sink under the irritating and exhausting effects of heat. When the morbid condition of the system, which gives reason to fear the approach of phthisis, depends chiefly upon hereditary predisposition, and occurs in early life, especially in feeble irritable constitutions, the climate of the West Indies will rarely agree. At a more advanced period of life, and in constitutions free from much disorder of the nervous system, and of the digestive organs, the climate may prove useful. The revolution effected in the distribution of the circulating fluids and in the secretions, may have the effect of enabling a constitution in which there exists considerable powers, to overcome the tuberculous diathesis.

Independently of the nature of the patient's constitution, other circumstances will deserve consideration; for instance, whether the invalid can command the accommodations and comforts necessary

[1] So well convinced was Dr. M'Arthur of this, that he thought it his duty to communicate the fact officially to the head of the Naval Medical department; and I am informed by Sir William Burnett, Inspector General of the Navy, that the practice of sending consumptive sailors to this and other hot climates has long since been discontinued.

upon a voyage, and during his residence in the West Indies; whether he may have the power of selecting a proper situation, and of quitting the country on the approach of the summer heat, &c.

It is a remarkable fact, confirmed to me by Drs. Arnold and Musgrave, that persons obviously predisposed to consumption are rarely attacked by the indigenous fever.

The cases of Pulmonary Consumption, therefore, in which the climate of the West Indies promises advantage are very few, and their character scarcely ascertained; while those in which it produces mischief are numerous, and generally well marked. Of persons predisposed to the disease, a certain proportion are likely to be benefited by the climate,—but the nature of the constitution should be well considered before it is recommended even as a prophylactic.

The affections of the chest most likely to derive benefit from a residence in the West Indies are chronic diseases of the bronchial membrane, occurring in persons otherwise of a tolerably sound constitution. "Persons," says Dr. M'Arthur, "labouring under chronic cough, about the middle period of life, and whose health is otherwise good, derive much benefit from the climate." In asthma, however, the same gentleman has generally observed the climate injurious. In both these statements, Dr. Melville's experience leads him to coincide. Dr. Arnold, however, did not find it so in Jamaica, where he has seen many cases of this disease benefited by the climate. I have not myself had sufficient experience to enable me to form an opinion on the subject; but I can have no doubt that the cases in which the climate will prove most useful, are those in which the disease is chiefly confined to the bronchial membrane, and in which the digestive organs are in a sound state.

In stomach complaints the West Indies are very generally unfavourable. The extreme activity of the cutaneous circulation, excited and kept up by the great heat of the atmosphere, although it may diminish internal congestion, induces, I am inclined to think, after a time, an irritable condition of the mucous membrane of the stomach and bowels, combined with a state of relaxation, which greatly predisposes to dyspepsia, dysentery, and other disorders of the abdominal viscera, and to gastric fevers:—diseases which make up almost the sum of mortality among Europeans in the West Indies. At the same time I do not mean to deny that in certain cases of dyspepsia, of long standing, a residence in this climate may prove beneficial; just as we find other great changes, of various and even opposite kinds, in the condition of the individual, effect a cure in this and other diseases, of which, in our limited knowledge of the animal economy, we are unable to render a satisfactory explanation.

Chronic Rheumatism.—The marked benefit derived in this disease from a mild climate, probably led to the belief that the West India and other tropical climates would prove still more beneficial. Experience, however, has not justified the expectation. While some cases of the disease are benefited by the climate of the West

Indies, others are, on the contrary, aggravated by it. When the rheumatic affection is symptomatic of, or accompanied with, an irritable state of the digestive organs, or a feeble relaxed state of the system, the climate will disagree. "Chronic rheumatism," says Dr. M'Arthur, "when the general health is unimpaired, is much relieved, but when the health is deteriorated, the powers of the digestive organs much weakened, or the disease attended with profuse perspirations, nothing but a return to a cooler climate can save the patient." In my own opinion, the climate is too hot for the generality of rheumatic patients. Our soldiers and sailors are frequently invalided from the West Indies on account of rheumatism. Dr. Grainger says that this disease, in the chronic form, is more prevalent there than in this country, especially sciatica; and Dr. Wright adds, that acute rheumatism is frequent in the West Indies.[1] Hereditary gout, Dr. Musgrave says, is often as severe in the West Indies as in England. On the other hand, Dr. Arnold states that gout and rheumatism, according to his experience, are of rare occurrence in Jamaica, and he has known many cases of these diseases benefited by a temporary residence in the West Indies; but in Jamaica it is to be remarked, rheumatic affections are much less prevalent among our troops than in the Windward and Leeward Command, or in Great Britain.—*Army Reports.*

Calculous disorders are rare in the West Indies. Dr. Musgrave has met with stone in the bladder *once* only, but he has seen several cases in which renal calculi, after the usual symptoms, were passed by the urethra. Dr. Arnold, during an extensive practice in Jamaica of twenty years, met with two cases only of calculus. Diseases of the heart and large vessels are also rare, and the osseous deposits, which are so generally found in the coats of the larger arteries in persons who die at an advanced age in cold climates, are said to be rarely met with in those who die at a similar age in the West Indies.

The climate generally proves serviceable in scrofula, which is a rare disease in the West Indies. Dr. Fergusson, in particular, speaks in strong terms of the beneficial effects which he has observed the climate produce in scrofulous diseases; Dr. Melville coincides in this; but Dr. Arnold limits the utility of the climate to incipient states only.

In the higher districts of the interior of Jamaica the children are uncommonly fine; and the children of Europeans and Creoles continue to thrive well till they attain the age of eight or nine years, after which they generally begin to droop. At this age, therefore, children should be sent to a more temperate climate. Dr. Arnold remarks that the diseases of childhood, measles, scarlatina, &c., are generally mild.

To persons of weak irritable constitutions, or with irritable

[1] Essay on the More Common West India Diseases, by James Grainger, M. D.

bowels, or deranged digestive organs generally, or with an irritable skin, or subject to cutaneous eruptions of an irritable character, or too copious perspirations, the West Indies will prove injurious. Persons subject to severe headaches, or who have any hereditary disposition to cerebral disease, or to insanity, and fair plethoric people generally, should also avoid the tropics.

Having given an account of the climate of the West Indies, in general, I shall now notice the islands which are considered the most healthy, and where invalids may obtain all the advantages which the climate affords. These are Jamaica, Barbadoes, St. Vincent's, Antigua, and St. Kitt's.

In many other islands there are, perhaps, to be found situations equal in point of salubrity to any of these; and there are among the small islands more than one entirely free from all endemic sources of disease.[1] Yet the islands just named possess advantages, which, upon the whole, render them preferable to all the others as the resort of invalids. Of these, St. Vincent's and St. Kitt's are mountainous; Barbadoes and Antigua are low islands. As St. Vincent's lies in the vicinity of Barbadoes and Antigua, near St. Kitt's, the invalid may without much inconvenience or difficulty change his residence, and in some degree his climate, by passing to the higher situations in the neighbouring mountain island, and the reverse. This, as we shall have occasion to show, is a matter of considerable importance.

Jamaica.—On account of the size of the island, and the height of its central ridge of mountains,[2] the climate of Jamaica differs in some respects from that of the other islands. It has a greater range of temperature, and, therefore, a greater variety of climate. There is a considerable difference between the lower and higher parts, and between the north and south sides of the island. It has also the advantage of a sea and land breeze, which the smaller islands have not. Dews are abundant. More rain falls on the north than on the south side of the island. On an average of five years it rained 116 days; the fall is 50 inches. The difference of temperature between the north and south sides of the island amounts to 5° during the whole year, and in the first three months of the year to from 8° to 10°.

In the mountainous districts of St. Andrew and Port Royal, there

[1] Of this kind is one of the small islands called the *Saintes*, situated between Guadaloupe and Dominica, which possesses an excellent harbour. But there are here no accommodations for invalids.

[2] The altitude of the highest of the three peaks of the Blue Mountains is 8,500 feet above the level of the sea.

The temperature averages, from January to April, in the early morning 55°, in the afternoon 70°;

From April to June 60°, in the afternoon 75°
„ June to Sept. 65°, ditto, 80°
„ Sept. to Dec. 65°, ditto, 75°

This may be considered the mean temperature of a series of years.

are residences and settlements, three or four thousand feet above the level of the sea, where the air is temperate and salubrious all the year round, but more particularly from the month of January to the end of May. Probably the most healthy district is the mountainous part of the parish of St. Ann, which is nearly in the centre of the island.

The mean temperature of the year at this place is 76°. It is generally speaking a dry district; there are no morasses or jungle, and the carriage roads are excellent.

Convalescents from other parts of the island often derive considerable benefit from a residence of a few weeks only in this region. It is also a safe temporary retreat for consumptive as well as other invalids.

Lucea also, has a high reputation for salubrity among the inhabitants, and is often resorted to by convalescents; the climate is cool and pleasant except during the months of July, August and September.

Barbadoes is one of the healthiest islands; it is almost entirely free from marshy grounds; and, from being cultivated throughout, and comparatively level, it affords more opportunities of exercise than many of the others. The capital, Bridgetown, although more healthy than most of the sea-ports in this country, is the most unhealthy spot in the island. It should, therefore, be avoided as a residence by the invalid. Speightstown, on the northwestern extremity of the island, is the best residence in the form a town; but if accommodations could be found, the higher grounds in the interior of the island possess many advantages. The part of the island called Scotland is from 600 to 800 feet above the level of the sea, and is constantly perflated by the trade wind. It is therefore cooler than the lower parts of the island, without being subject to the great and sudden alternations of temperature, which are experienced in the more elevated situations of the mountainous islands. This district is also remarkably healthy. So high an opinion did Dr. Fergusson form of the salubrity of this spot, he informs me, that after a careful topographical survey of the whole Caribbean Archipelago, with which he was occupied three years, he recommended it officially to government as the best situation for establishing a general convalescent depot, for the debilitated invalid troops of all the other islands, instead of sending them to Europe as was the usual custom.

Notwithstanding the uniformity of temperature which prevails among these islands, the effect of a change from one to another is often very remarkable in improving the health. This has been observed frequently, on a large scale, among our troops stationed in the West Indies; and, indeed, I believe, one of the most powerful means of diminishing the sickness among our troops in that climate, would be to remove them frequently from one healthy island to another; or still better, send them to sea for a few weeks.

St. Vincent's lies directly to the westward of Barbadoes, from

which it is distant only a few hours sail. Its capital, Kingston, is almost peculiar, Dr. Fergusson remarks, in being built in a healthy site on the shores of a fine bay. A cool situation may be found by ascending the mountains which compose the greater bulk of this beautiful and romantic island. But here the difficulty of finding accommodations will be still greater than in the higher parts of Barbadoes.

Antigua, although one of the low islands, is, in many parts, considerably more elevated than Barbadoes. There are some unhealthy spots in this island, but the greater part of it is healthy; and many positions on its rounded hills favourable to health may be found. The fall of rain is forty-five inches. Dryness of atmosphere characterises the climate both of Barbadoes and Antigua. Antigua bears the same relation, in point of elevation, to St. Kitt's, that Barbadoes does to St. Vincent's. The climate of Antigua, according to the Army Reports, may be considered as more favourable both to white and black troops than most of the others in the command.

St. Kitt's, (or St. Christopher's) is one of the most beautiful islands in the West Indies, rivaling Barbadoes in many respects, and excelling it in others, as a residence for invalids. Indeed, among my medical friends, who have visited the Caribbean Islands, I think the greater number give this island the preference over all the others, certainly over all the high islands. The greater part of St. Kitt's is healthy; and from its mountainous character, it affords the invalid an opportunity of seeking a cooler climate; but here, unfortunately, the means of accommodation are greatly limited; and we speak rather of what it might afford, than what it really possesses. A situation of this kind, called Spooner's Level, is described by Dr. Fergusson, in a written communication to me, as embosomed in the great volcanic central ridge, which divides the island longitudinally; and at an elevation of 1400 feet above the level of the sea, in a climate, and amid scenery truly beautiful, affording the most delightful atmosphere which he ever breathed. St. Kitt's has also the advantage of excellent roads. Considering all things, St. Kitt's, as a high, and Barbadoes as a low island, appear to deserve the preference over all the other small islands. But a more advantageous and better plan for the invalid, than residing in any one island, would be to cruize among, or make short visits to the different islands. St. Kitt's, from its situation among a group of islands, is well situated for the head quarters of an invalid, having such a plan in view.

The little island of *Nevis*, in the immediate vicinity of St. Kitt's, and similar to it in its physical characters, deserves perhaps to be mentioned. It is considered very healthy.

By referring to what has been stated respecting the seasons in the West Indies, the proper time for the residence of the invalid in that country will be found to be from the beginning of December to the end of April. This period is alone suited to invalids who

visit the West Indies for the recovery of their health. It is the coolest and most healthy part of the year,—the epithet *healthy* being applied to it, in contradistinction to the autumn, which is termed the *unhealthy* season, from being the time during which the endemic diseases, which are the scourge of the West Indies, prevail with the greatest force. By leaving England in the end of October, or beginning of November, the invalid would reach the West Indies at the proper season; and he should contrive, if possible, not to return to this country until the end of June.

Before concluding the subject of the West Indies, it may be well to add a few remarks on the management of the invalid during his voyage to, and residence in these islands, as this is a subject on which he is likely to receive very contradictory, and often very erroneous counsel.

On approaching the tropics, when about the 25th or 24th degree of latitude, where the temperature ranges from 70° to 80°, a degree of general excitement is very often experienced, and a disposition to catarrhal affections which demands particular attention on the part of the invalid labouring under any chronic pulmonary disease.

The proper means to prevent any injurious effects from the increase of temperature, is to live somewhat more abstemiously than usual, and upon less exciting food. The quantity of wine generally drunk should be diminished, or it may be advisable to abstain from wine altogether. Long exposure to the direct rays of the sun, should also be avoided. Attention to these circumstances, with the use of a little cooling laxative medicine, will generally be all that is necessary on arriving in the West Indies. For some time afterwards a continuance of the same simple, unexciting regimen, should be persevered in, in order that the system may become habituated to the exciting influence of a high temperature, and until the increased cutaneous secretion, which appears to be one of the principal means employed by nature to enable the living body to bear the heat of a tropical climate without injury, is fully established. Whether approaching or residing in the West Indies, this, says Dr. Arnold, is the grand secret for the preservation of health, and to the neglect of it, and the adoption of an opposite mode of living, is to be attributed in a great degree the sickness and mortality among the European residents in these islands, and indeed in all tropical climates. Exercise in the middle of the day, and exposure to currents of air while in a state of perspiration, should be carefully avoided. From these two causes, and an over-exciting diet, are produced a great proportion of the diseases which prove so fatal to Europeans in the West Indies. With respect to clothing, it is now universally admitted, I believe, by those who have resided in a tropical climate, that flannel is the safest and best covering next the skin. Although the general temperature of the winter is very high, yet dry, cool winds, frequently occur, and give rise to catarrhal and other inflammatory affections of the lungs. In March and April, when the greatest difference exists between the tempera-

ture of the day and night, Dr. Hunter found catarrhs frequent in Jamaica. Dr. Chisholm states, that in those parts of the islands especially which are exposed to the sharp northerly winds of the spring, called *norths*, the inhabitants are annually afflicted at that season with pulmonary and hepatic inflammation. He adds further, that it is a grievous error to believe that catarrhal complaints are rare in the torrid zone; and, in addition to his own experience, he cites that of M. Desportes, an intelligent French physician, who practised many years in the island of St. Domingo, who observes that "les habitans des pays chauds sont encore plus sujets aux catarrhes que ceux des temperés." A medical friend, who long enjoyed an extensive practice in Barbadoes, and to whom I am indebted for some useful information on the subject of this article, informs me, that epidemic catarrhs are frequent in that island, and often prove fatal to the black inhabitants; and Hillary also describes catarrhal fevers as of frequent occurrence in Barbadoes in his time, and often epidemic, spreading over the whole island, and sparing neither whites nor blacks.

It must not be believed from this, that Barbadoes is more subject to catarrhal affections than the other islands; they have only been better described. Dr. Grainger, who practised in St. Kitt's, observes, that coughs are common in the West Indies, from the latter end of October to the latter end of February.[1] Dr. Arnold, in his work, has also remarked the occurrence of bronchial affections in Jamaica, but describes them as mild compared to the same diseases in England, and as being curable by very mild treatment.[2] Dr. Musgrave agrees in this, and says that epidemic influenza sometimes prevails, but is a mild disease, easily yielding to the simplest remedies.

There is one circumstance in the character of tropical diseases, which the European visiting these colonies should be fully impressed with, and that is, their violence and very rapid progress. This is more especially the case with fevers and inflammations; in such cases, the remedies require to be applied early, and with an energy proportioned to the violence of the disease. On this account it is advisable to call in medical advice the moment disease makes its attack.

From what has been said, it is manifest, that he who visits the West Indies, more especially with a view to the restoration of his health, requires to conduct himself with great circumspection.[3] Nor must his care cease with leaving these islands. On returning to this country, he has to guard against the effects of the change of

[1] Op. citat.

[2] A Practical Treatise on the Bilious Remittent Fever, &c. To which is added, Medical Topography of the Different Military Stations in Jamaica. London, 1840.

[3] For more detailed information respecting tropical diseases and hygiène, the reader is referred to Dr. James Johnson's comprehensive and valuable work, The Influence of Tropical Climates on European Constitutions. Fifth Edition, London, 1836.

climate, and must provide for it by suitable clothing. In this respect he should anticipate the change of climate; and avoid exposing himself long, on deck, to damp, cold winds. The complaints most likely to attack persons returning from a hot to a cold or temperate climate are diarrhœa, catarrh, and rheumatism, or a relapse of any disease to which the person had been subject. All these may be prevented by warm clothing, attention to diet, and avoiding unnecessary exposure in cold and damp weather.

APPENDIX.

I.

CLIMATES OF THE SOUTHERN HEMISPHERE.

I have limited my observations in the foregoing pages to the climates of the Northern Hemisphere; but the Southern Hemisphere also affords climates in every way congenial to the European constitution, and calculated to exert on the health the same beneficial influence as the best northern climates. The Cape of Good Hope, Australia, and New Zealand, present themselves for choice among the British possessions, and offer peculiar advantages to those whose inclination or circumstances lead them to seek a permanent settlement in the climate which is most likely to suit their constitution.

Although we have not any very extensive data by which to estimate the precise characters of the climates of these different regions, we yet have the experience of a considerable period, during which, with the exception of New Zealand, the countries above named have been inhabited by the English; and even respecting New Zealand we possess information which enables us to form a tolerably accurate opinion of the climate, and its influence on the health of natives of this country, and to compare it with the other places referred to in the Southern Ocean.

From the situation south of the Equator of the countries under consideration, their seasons are the reverse of ours. Thus August, September, and October constitute the *Spring* months; November, December, and January, *Summer;* February, March, and April, *Autumn.;* and May, June, and July, *Winter*,

CAPE OF GOOD HOPE.

For the few remarks to be made on the climate of the Cape I am indebted chiefly to the Army Returns, so often referred to.

The range of the thermometer at Cape Town, taken on the average of seven years (1827—33), was as under:—

Months.	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov	Dec.
Max. . .	86	84½	82	78	73	67½	65½	67	68	72½	77	80
Med. . .	78	76½	75	71	66½	61	59½	61	62½	65½	70	74
Min. . .	72½	70	68½	65½	61	57	56	56	57	60	63	69

A table such as this, however, which only indicates the range of the thermometer in the shade, cannot convey any adequate idea of the intense heat occasioned by the reflection of the sun's rays from the adjacent mountains.

The character of the atmosphere is that of dryness; but the scarcity of rain and moisture, which renders a great part of the interior in certain seasons a barren desert, is much less experienced in the Cape district. The average number of days on which rain fell during a series of years, was seventy-five, and the quantity which fell averaged 41 inches, annually.

The most common winds at Cape Town are from the southeast and northwest. The former is the prevailing wind of the summer season, and from its blowing over the sandy flats between the town and Simon's Bay, is usually sultry, relaxing, and debilitating; the latter, the prevailing wind of the winter months, being a sea-breeze, is cold, chilly, and often accompanied by heavy falls of rain and violent gales.

Southwesterly winds prevail during spring and autumn, and from passing over the wide expanse of the Southern Ocean are generally surcharged with moisture, which wraps the summits of the mountains over Cape Town in dense fogs. As the upper stratum of the air becomes cooled, the fogs rapidly descend in tempestuous blasts, causing an immediate reduction of temperature, with an equally sudden transition from an extremely dry to a damp raw state of atmosphere. These winds are often accompanied with rain, which, however, is never so heavy as that brought by the winter wind, being only what is commonly known by the name of a "Scotch mist!"

From the Army Reports it appears, that the climate of the Cape district is at least as favourable to the health as that of Britain. Fevers of the intermittent and remittent type are extremely rare among the troops, and unknown among the inhabitants. The troops are less subject to diseases of the lungs at Cape Town than in our other colonies; and there is a smaller proportion of deaths from consumption than has been observed on any foreign station, except the East Indies. Rheumatism, which is more frequent among the civil inhabitants even than among the troops, prevails among the latter to a greater extent than at home, or in the other colonies.

The *Eastern Province*, including the new settlement of Albany, although subject to sudden variations of temperature, is in an eminent degree favourable to the European constitution. From the Army Reports as well as from what is known in regard to the mortality among the civil population, there can be no doubt that this portion of the colony is more favourable to health than the United Kingdom. The low ratio of sickness and mortality among the troops has been mainly attributable to the extreme rarity of diseases of the lungs. Pneumonia and consumption in particular are still less frequent than at Cape Town. Fevers also are even more rare and less fatal, but rheumatic diseases are exceedingly common.[1]

The places chiefly resorted to by invalids from India and England at the Cape of Good Hope, are *Rondebosch*, about five, and *Wynberg* about eight miles from Cape Town. At both places there are many comfortable commodious houses to be hired, and three public boarding-houses. There is a church at each place, and good English society. Living is very moderate.

These places are much cooler than Cape Town, chiefly owing to their being open to the southeast wind, which blows nearly the whole summer.

There are shady walks and rides, but the roads are very dusty.

The following will give an idea of the climate to be obtained during the summer months. The observations were taken in a sitting-room at Rondebosch, door and windows generally open, not much exposed to the sun, by the late Rev. Mr. Ash—

	Aver. Range of 24 hours.	Aver. tem. at 2 o'clock.	Extremes. min.	Extremes. max.	Rain fell on
From Dec. 17th to Dec. 31st. . .	65¼ to 69	68	61	77	2 days
January	67½ to 70¾	69½	65	76	7 days
February	67⅝ to 71⅜	69⅝	65	78½	7 days
March	65⅚ to 69⅕	67 3/10	61	74	7 days

AUSTRALIAN CLIMATE.

In a tract of country of such extent as Australia, various climates must necessarily be found. The settled districts are between the 30th and 43d degrees of south latitude, and possess generally a

[1] In regard to the frequency of rheumatism at the Cape, Dr. Smith says, in a letter to me, "that he is much disposed to attribute it to the injudicious practice which prevails, among persons of all classes, of seeking comfort in currents of cold air while in a state of perspiration, and often while much of their clothing is thrown off." It is to be remarked, that in New South Wales, which is similar to the Cape in point of climate, rheumatism is also prevalent and severe.

climate, which, though it may be characterised as temperate, and such as is congenial to the European constitution, presents several peculiarities.

New South Wales.—We are better acquainted with the climate of New South Wales than of any other part of Australia.

One peculiarity of the climate, is its liability to occasional great droughts, for instance five months without rain, as in 1826. Another evil of the climate is the occasional prevalence of dry sultry winds.

"The most singular phenomenon," says Dr. Lang, "in the meteorology of New South Wales, is the occasional prevalence of hot winds from the northwestward. These winds occur on an average four times every summer, and blow from twenty-four to thirty-six hours each time, the atmosphere all the while feeling like a current of heated air from a furnace, and the thermometer generally standing at from 90° to 100° of Fahrenheit. It has even stood as high on one occasion, within my own experience, as 112½°. This hot wind is usually succeeded suddenly by a wind from the south, which causes the mercury in the thermometer to descend with great velocity."[1]

The following table for Sidney affords a pretty good idea of the climate as regards temperature:—

Means of the Thermometer, from May, 1821, to April, 1822, according to Major Goulburn; and from May, 1822, to May, 1823, according to Sir Thos. Brisbane.

	Goulburn.	Brisbane.	Mean.
January	72.14	72.86	72.50
February	73.04	68.36	70.70
March	71.80	59.90	65.85
April	67.46	59.00	63.23
May	61.16	59.90	60.53
June	57.20	53.42	55.31
July	55.04	51.44	53.24
August	54.86	56.48	55.67
September	60.98	61.88	61.43
October	64.76	68.00	66.38
November	65.84	71.96	68.90
December	72.14	73.94	73.04
Summer	72.50	71.78	72.14
Autumn	66.20	59.54	62.87
Winter	61.34	52.78	57.56
Spring	63.86	67.28	65.57
Annual	64.40	63.14	63.68

The observations of Goulbourn were made at three different hours, viz. six o'clock A. M., noon, and eight, P. M.

[1] Historical and Statistical Account of New South Wales. London, 1837.

Yearly mean for 6 A. M.	63.14
do. do. Noon	65.48
do. do. 8 P. M.	64.94

This shows how small the daily range of temperature is.

Fall of Rain.—The following was the number of days, according to Goulburn, in each month on which rain fell during the year, from May, 1821, to April, 1822:—

May—, June 9, July 8, August 10, September 9, October 6, November 8, December 7, January 7, February 14, March 19, April 12.

The number of rainy days for May has been omitted; but if eight be allowed, the number for the whole year will be 107. In 1813–14, a year of drought, the number of days on which rain fell was only 61.

From the general dryness of the air, the heat in New South Wales is much less oppressive at equal degrees of temperature than in England.

In the winter the cold is but little felt in the lower parts of the colony bordering on the sea; but in the interior the frosts between night and morning are strong enough to leave upon the shallow pools ice of the thickness of a shilling.

South Australia.—The climate of South Australia is described as pleasant, except during the summer months, when the heat is disagreeably great. "The only objection," says Mr. James, "I have to the climate, *is the extreme changes of temperature*, generally three times a-day, increasing greatly the difficulty of escaping colds. At present, for example, the thermometer in the morning may be about 66°; 96° or 98° at mid-day; and 66°, or even lower, again by night."

From the general dryness of the air, however, the heat is much less oppressive than might be expected from the height of the thermometer.

Swan River.—The climate of Western Australia is much the same as that of New South Wales, only more moist, and not so liable to droughts.

Van Diemen's Land.—The climate of Van Diemen's Land is free from the droughts of the Australian Continent, and though cooler is more changeable.

The following is the result of Sir Thos. Brisbane's thermometrical observations made at Hobart Town during the year 1822:—

January	62.96	October	53.96
February	63.14	November	57.56
March	55.40	December	62.96
April	53.60		
May	45.68	Spring	52.88
June	41.00	Summer	62.96
July	40.10	Autumn	51.44
August	45.50	Winter	42.26
September	47.12	Year	52.34

There is little or no snow; the climate is dry; the breezes generally become gales, and when from the south, which is almost daily, they are felt to be very cold. From October 16 to February 23 (the summer in Van Diemen's Land), the weather was as follows:

Rainy	42
Strong winds	24
Fine and pleasant	28
Very fine	29
Wind too hot	7

Hottest day, 25th January, thermometer in the shade, 99½°; coldest day, 16th of October, 56°.[1]

The climate of Australia is, according to all accounts, remarkably healthy. Fevers are almost unknown, and the same may be said of hooping-cough, croup, &c.

Europeans, enervated by a residence in India, become very much invigorated and improved in health by a short stay in Australia.

Dysentery is the most prevalent and most fatal disease to which the colonists are subject. Few new comers, it is stated, escape an attack; and of the convicts who die in the civil hospitals, it is the cause of death in one half.

By a statistical report of the cases treated in the civil hospital at Sydney, in the year 1835, it appears that the most prevalent diseases were dysentery, rheumatism, ophthalmia, and catarrh; the number of cases of these four diseases being together 1937, out of a total number of 2654.

Catarrh prevails as an epidemic from time to time.

Owing to some deficiency in the returns, the Military Statistical Report on the Diseases of Australia, has not yet been completed, but in the introduction to the volume last presented to parliament we find it stated, that "the extreme salubrity of the climate may be estimated from the circumstance that on the average of twenty years, from 1817 to 1836 inclusive, the mortality did not exceed fourteen per thousand of the force annually, whereof more than a fifth part arose from violent or accidental deaths, principally attributable to the nature of the duties on which the troops were employed. Thus the mortality from disease alone could have amounted to little more than one per cent. annually, being lower than in any other colony, except the Eastern Provinces of the Cape of Good Hope, to which the climate of Australia is in many respects similar."

In the Transactions of the Provincial Medical and Surgical Association, a summary of the diseases treated in the Colonial Hospital at Hobart Town, for a period of eleven years, from 1821 to 1831

[1] Journal of a Gentleman visiting Van Diemen's Land to recruit his health after a lengthened residence in India, quoted in Swainson's Observations on the Climate of New Zealand, a small work recently published, giving a condensed view of all the information we possess on the subject.

inclusive, is given by Mr. Scott.[1] As this return seems to have been prepared with considerable care, it is possible, from the proportion which the diseases therein enumerated bear to the general mass, compared with the proportion which the same diseases bear to the whole number under treatment in the military hospitals at other foreign stations, to form an approximation to an estimate of the influence of the climate of Van Diemen's Land. In this comparison we shall confine ourselves principally to diseases of the lungs, which seem to be of rather unfrequent occurrence in that part of Australia.

PLACES.	CASES.	Pneumonia and Pleuritis.	Hemoptisis.	Consumption.	Catarrh.
Hobart Town	Out of 30,102.	516	98	104	1657
	Proportion	1 in 58	1 in 307	1 in 290	1 in 18
Cape of Good Hope	Out of 25,506.	673	55	125	1320
	Proportion	1 in 33	1 in 409	1 in 180	1 in 17
Gibraltar	Out of 58,227.	2543	189	394	5186
	Proportion	1 in 23	1 in 308	1 in 148	1 in 11
Malta	Out of 46,639.	1391	106	235	3041
	Proportion	1 in 34	1 in 440	1 in 198	1 in 15
Ionian Islands . . .	Out of 84,438.	2272	147	339	3401
	Proportion	1 in 37	1 in 574	1 in 249	1 in 25

From the preceding table it will be seen that comparatively fewer cases of pneumonia and pleuritis, hemoptysis and consumption occur in Van Diemen's Land than in any of the other colonies, and that as regards catarrh the proportion of cases also is less, with the exception of the Ionian Islands.

With regard to other diseases, it appears that fevers are exceedingly rare, even compared with the healthy colonies above referred to. Dysentery and dyspepsia very common, and constipation extremely so; while diarrhœa is but little experienced. Affections of the liver, too, are more rare than in any other climate with which we are acquainted, but rheumatism is a disease of great frequency, and also of more than usual severity; and it is very remarkable, that of the 30,102 cases, no fewer than 1134 were from toothache.

Scrofula and glandular diseases are rare. Idiopathic intermittent fever, malignant sore throat, smallpox, measles, scarlet fever, hydrophobia, &c. have not been met with in the colony. Hooping-cough

[1] In regard to the cases comprehended in this summary, it is to be observed, that the greater number of the acute diseases were brought on by intemperance, imperfect clothing, and exposure to wet and cold, and that the greater part of the patients were European convicts, of the most dissolute habits and broken constitutions.

was once introduced, and for a short time extended as rapidly and widely as in England, but gradually became milder, and in a few months disappeared, There have been no epidemics in the colony except on two occasions. The first of these was an epidemic influenza, which carried off many persons infirm from age; the second was an epidemic continued fever. The diseases, both acute and chronic, are generally mild, and of comparatively short duration, and yield easily to the usual remedies.[1]

The frequent and sudden changes of weather in Van Diemen's Land do not appear to be attended with the same hurtful consequences to the health as in other countries; and it is remarked by Mr. Scott that "situations apparently unhealthy are inhabited with the utmost freedom, without injury to the constitution, though in any other country they would probably be attended with inevitable destruction, or, at least, much hazard to human life."

New Zealand.—The New Zealand group consists principally of two large islands, about 800 miles in length and 100 miles in breadth, situated between 48° and 34° of south latitude, and between 166° and 179° east longitude.

Both Islands are intersected in the greater part of their length by a chain of very high mountains perpetually covered with snow; hence the country abounds in streams and rivers.

The northern island of New Zealand appears to be more favoured by nature than the southern; but both enjoy a temperate climate.

The climate, especially of the northern island, is described by all who have visited the country as extremely pleasant and salubrious, and in every respect congenial to the European constitution.

The temperature is never very high in summer, nor very low in winter, so that the annual range is within narrow limits. The following table is deduced from Major Cruise's thermometrical observations made during the autumn, winter, and spring, at various places on the west, north, and east coasts of the northern island, between the river Hokianga and the Thames.

Mths.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.
Max.	64.00	66.00	68.00	77.00				74.00	69.00	69.00	68.00	62.00
Min.	48.00	51.00	51.00	58.00				65.00	57.00	50.00	50.00	40.00
Mean	57.62	59.06	60.48	63.41				69.15	63.46	58.80	57.70	52.86

During the period to which the above table applies, viz. from March to November inclusive, 86 days were rainy or showery, 78 days were more or less windy, squally, foggy, dark, or hazy, and 150 days were fine.

[1] A Return of Medical and Surgical Diseases treated at H. M. Colonial Hospital, Hobart Town, Van Diemen's Land, for the Years 1821 to 1831. By James Scott, Esq., Colonial Surgeon.—In the Transactions of the Provincial Medical and Surgical Association, vol. iii. 1835.

The climate of New Zealand appears to be mild, soft, and equable. Unlike New South Wales, it is not subject to drought and hot winds, but is plentifully supplied with rain, which appears pretty equally distributed throughout the year. The coasts are much exposed to high winds.

Scrofula and consumption are said to be prevalent diseases among the natives; rheumatism, cutaneous diseases, and inflamed eyes are also common.

The following is a comparative TABLE showing the Mean Temperature of Places in nearly corresponding Latitudes North and South of the Equator.

PLACES.	Yearly Mean.	Spring.	Summer.	Autumn.	Winter.
Funchal, in 32° 30 North Lat.	64.56	62.20	69.33	67.23	59.50
Malta, in 36° 55 North Lat.	67.50	63.50	78.16	71.00	57.33
Rome, in 41° 52 North Lat.	60.70	57.65	72.16	63.96	48.90
Nice, in 43° 20 North Lat.	59.48	56.23	72.26	61.63	47.82
Sidney, in 34° South Lat.	63.68	65.57	72.14	62.87	57.56
Port Johnston, 34° South Lat.	66.56	66.20	80.06	67.82	52.34
Cape Town, in 34° South Lat.	66.56	65.66	74.30	67.28	58.64
Hobart Town, in 43° S. Lat.	52.34	52.88	62.96	51.44	42.26

These few remarks on the climate of our colonies in the Southern Ocean may, I hope, lead to the farther prosecution of the subject, which is one of great interest. Extended and accurate observations on the topography and climate of these regions will not only afford positive information regarding them, but may correct some of the opinions at present entertained respecting the causes of disease in the more unhealthy parts north of the equator. Some striking differences in the influence of certain localities upon health, have been already observed. It is remarked in "The Statistical Reports on the Health of the Navy," that on the South American station there are land-locked harbours, where, under a powerful sun, ships lie for months, or years, surrounded by a country abounding in marshes and rank vegetation, and all the other circumstances which elsewhere are considered the essential cause of the fevers which prove so destructive of life among Europeans, without the occurrence of a single case of fever; the crews, on the contrary, enjoying good health. Analogous to this is the circumstance above quoted from Mr. Scott's report that in Van Diemen's Land, situations which in other countries are found to exert a prejudicial influence on health, have there no such effect.

II.

MINERAL WATERS.

The influence of climate, in the cure of some of the principal diseases treated of in the foregoing pages, may be so effectually promoted by the use of Mineral Waters, that a few observations on the proper application of these will form an appropriate supplement to this volume. It is not my intention to give here a particular account of the waters which I shall have occasion to notice: on this point the reader will find ample information in the various works published expressly on mineral waters, more especially on those of Germany.

It may be remarked, in the first place, that the diseases in which mineral waters produce the most beneficial effects are those of the organs more immediately concerned in digestion and assimilation. The diseases of the skin, of the joints, of the nervous and uterine systems, in which mineral waters are so efficacious, very generally have their origin in disorder of the digestive apparatus; and the correction of this constitutes in general the first step in the cure.

Disorders of the Digestive Organs.—Although the favourable influence of climate, and a suitable regimen, may allay irritation of the mucous surfaces, and induce a more healthy action of these and of the skin, something more active is often required in protracted and complicated cases of dyspepsia, to excite a freer and more steady action of the liver and other secreting organs connected with digestion. With this view I consider a well-directed course of mineral water very efficacious, and capable of effecting, in many cases, what no other remedy with which I am acquainted can effect. Mineral waters, by increasing the action of the secreting and excreting organs, powerfully contribute to relieve the vessels from the load which oppresses them; and thus often produce the most beneficial effects, not only in restoring the functions of the affected organs, but in improving the condition of the whole system. After a well-directed course of mineral water, the dyspeptic invalid enjoys a degree of activity of body and energy of mind to which he had long been a stranger; and if it be followed up by a residence, during the following winter, in a mild climate, the beneficial effects may be increased and confirmed.

But as it is with every other remedy, so the degree of benefit to be derived from the use of mineral waters, will depend upon their

proper adaptation to the individual case. Besides, it is to be remarked that every case of dyspepsia will not be benefited by mineral waters; on the contrary, many cases would be injured by the mildest of them.

The selection of the particular water must depend upon the peculiar nature of the derangement and degree of susceptibility of the digestive organs, and upon the secondary disorders which may have been induced in other parts of the system.

When the mucous surfaces are in a state of irritation, and the liver and abdominal venous system generally, are in a congested state, or when the functions of the uterus are defective, and there is not much relaxation of the system, the mineral waters of *Ems*, of *Vichy*, or of *Plombieres*, will be useful, particularly the two first. In cases where the skin is in an unhealthy state, or where dyspepsia is complicated with chronic bronchial disease, and no objection exists to an elevated, mountainous country, *Cauterets*, among the Pyrenees, will deserve a preference.

When the abdominal viscera are in a more obstinately congested and torpid state, and when there does not exist much irritation of the mucous surfaces, the waters of *Marienbad*, *Carlsbad*, and *Kissingen*, will be more useful than any of these. When the digestive organs are easily excited, and a full action on the bowels is required, the cold aperient waters of Marienbad are indicated; when the digestive organs are in a languid state, the more exciting waters of Kissingen will be preferable. The Carlsbad water, in its operation on the animal economy, may be considered as holding a medium place. In some cases, a course of the *Ems* water may precede these with great advantage. When a state of atony of the stomach exists with general nervous debility; or when the uterine system is debilitated and relaxed, without there being any organic disease, a cold chalybeate water, such as that of *Pyrmont*, or *Schwalbach*, will be very useful, and, in many cases, still more so, if preceded by a course of Kissingen water. The internal use of the two former is often advantageously combined with a course of warm bathing in the same. But to derive essential benefit from this class of waters, the digestive organs must be free from irritation, and the vascular system not in a state of plethora. In many cases a course of bathing at *Ems* forms a good preparative for the internal use of a chalybeate water.

All these waters, at the same time that they are used internally, may generally be employed in the form of bath with great advantage. The temperature, the duration and repetition of the bath can be directed only by the physician residing at the place; and the same observation applies to the duration of the course, the quantity of water to be drunk, &c.

A short course of a cold chalybeate water may be employed very advantageously, in many cases, with the view of giving tone to the system, and confirming the effects of the deobstruent waters. When it is desirable to keep up some action on the bowels, the waters of

Eger will answer well; when the purely tonic effects of the waters are desired, those of Schwalbach or Pyrmont will be preferable.

From a well-directed course of one or more of these waters, the dyspeptic invalid will, I believe, derive all the advantage which is to be obtained from this class of remedies.

After the use of mineral waters, a residence for some time in a bracing air, or by the sea-side, will be very beneficial. When the intention is to pass the winter in Italy, the journey, if well conducted, is not likely to interfere with the good effects of the waters; but rapid traveling should be avoided, and whatever is likely to excite or heat the system.

Bronchial Diseases.—There are several mineral waters on the Continent which have a high reputation in this class of diseases. *Ems* on the Rhine, *Bonnes* and *Cauterets* among the Pyrenees, and *Mont d'Or* in Auvergne, are held in great estimation. A residence during one or two winters in Italy, and a course of one or other of these waters, according to the nature of the case, during the summer, afford, I believe, the most effectual means we possess in the more obstinate and deeply rooted cases of bronchial disease.

The selection of the particular mineral water must depend on the nature of the case. Where the bronchial disease is accompanied with much general delicacy of constitution, and is connected with a congested state of the abdominal circulation, *Ems* deserves the preference. In cases of less delicacy, and those especially in which a mountain air promises benefit, or where the bronchial disease is complicated with chronic cutaneous eruptions, *Bonnes*, or *Cauterets*, will be more effectual. In cases where there exists a very torpid state of the system, and especially a languid or defective action of the skin, or where the occurrence of the bronchial disease has coincided with the disappearance of any cutaneous eruption, the system of bathing adopted at *Mont d'Or* will, I believe, effect cures where the other waters fail.

When the bronchial disease is consequent upon abdominal congestion and disorder of the digestive organs, a course of the Ems waters, followed by those of Carlsbad, Marienbad or Kissingen, as the case may indicate, will prove the most efficacious combination; and a short course of chalybeate water will in some cases give permanency to the effects of the other waters.

Asthma.—When treating of asthma in the first part of this work, it was remarked that when the disease is complicated with chronic irritation of the bronchial membrane, or of the digestive organs, or with a congestive state of the hepatic system, or an unhealthy condition of the skin, a course of warm mineral water will prove of much benefit.

There is more difficulty, however, in selecting a mineral water for the asthmatic patient than for any other, as the source, most suitable in other respects, may be in a situation which decidedly disagrees with the asthma. However well suited the waters of the Pyrenees, or of Mont d'Or, might be as regards the bronchial

disease, it would be useless to propose a residence at either of those places, to an asthmatic invalid who could not breathe at a great elevation, or to send him to Ems or Carlsbad, who could not live in a valley, although their waters might be admirably adapted to the bronchial or abdominal diseases, with which the asthma is complicated. I need not repeat here what I have already stated, regarding the use of the mineral waters, under the heads of Dyspepsia and Bronchial diseases.

When asthma is complicated with disease of the heart, the use of mineral waters is inadmissible, and might be productive of serious injury. This point should always be carefully ascertained before mineral waters are prescribed in asthma.

Gout.—The waters of Ems, of Carlsbad, of Marienbad, of Aix-la-Chapelle, and of Wiesbaden, here deserve particular mention.

Used internally, the waters of Ems and Carlsbad are well calculated to benefit the gouty constitution. The soothing effects of the former prove an excellent preparative, in many cases, for the more exciting but more deobstruent waters of the latter; and these again may often be advantageously followed by bathing and the application of the douche at Wiesbaden, or Aix-la-Chapelle; more especially when frequent attacks of the disease have left the joints stiff and swollen.

Before prescribing a course of mineral waters in gout, or indeed in any other disease, it should be ascertained that there is no disease of the heart or large vessels, or other organs in the chest; and also that there is no disposition to cerebral congestion.

Rheumatism.—Climate and mineral waters are very efficient remedies in chronic rheumatism. The baths of *Aix*, in Savoy, have long enjoyed a high character in obstinate cases of this disease. The waters of *Cauterets* and *Bagneres-de-Luchon*, among the Pyrenees and those of Aix-la-Chapelle are very beneficial, especially when the rheumatism is complicated with cutaneous affections. When the disease, however, is symptomatic of a deranged state of the digestive organs, a course of mineral water, calculated to remove this, will be more beneficial than any waters directed to the affection of the joints only. The cold sulphureous waters are often extremely useful in chronic rheumatism; and as one of the best of the class in this country, I may mention Strathpeffer, in Ross-shire.

FACTITIOUS MINERAL WATERS.

As many persons, in whose complaints mineral waters are indicated, must find it inconvenient to take a course of them at their sources, it may not be irrelevant to our present subject to say a few words respecting the Factitious Mineral Waters introduced into this country by the late Dr. Struve of Dresden. When in Germany, I made particular inquiries regarding the estimation in which these waters were held by the physicians of the different

cities in which Dr. Struve had establishments. The information which I obtained, more especially at Berlin, where these factitious waters are extensively employed, was invariably in favour of their decided utility; and the remarkable similarity of their effects to those of the natural waters was generally admitted. The respectability of Dr. Struve, and his skill as a chemist, were also universally acknowledged.

After such satisfactory information, obtained from physicians of the highest character in Germany, I had no hesitation in prescribing the waters of the German Spa at Brighton in the same cases in which I should have recommended a course of the natural waters of Ems, Carlsbad, &c., had not the distance of these places presented obstacles to their employment. I have had abundant experience of the beneficial effects of Dr. Struve's waters in the diseases which are treated of in this work. And I feel satisfied that when their effects are more generally known to the profession, and the manner of using them better understood, they will be extensively and beneficially employed in a numerous class of diseases, and especially in disorders of the digestive organs, &c. At the same time, if the patient could conveniently take a course of the natural mineral water at its source, I should decidedly prefer this.

In one respect, however, the patient has an advantage in taking the factitious mineral waters, as they may be changed according to the circumstances of the case during the progress of the course. For example, in many cases it will be very desirable to begin with a mild water, such as that of Ems, of Salzbrunnen, or of Saratoga, as a preparative for the more active and more exciting waters of Marienbad, of Carlsbad, and Kissingen; and these again may be succeeded by a short course of the chalybeate waters of Eger, of Pyrmont, or of Spa.

The warm sea-water bath will in the greater number of cases, promote the beneficial action of the waters; and at Brighton this can be had very conveniently. The effects of the dry bracing air of this place will also contribute, more especially in relaxed constitutions, to the salutary operation of the waters.

TABLE I.—Showing the mean temperature for each month, each season, and for the whole year.

BRITISH CLIMATES.

NAMES OF THE PLACES.	Mean Annu Temp	Mean Tem of Seasons.				MEAN TEMPERATURE OF EACH MONTH.											
		Win.	Spr.	Sumr.	Autm	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Penzance, 1. (A.)	51.80	44.03	49.63	60.20	53.36	42.50	43.50	46.40	48.50	54.00	58.50	61.20	60.90	57.60	53.70	48.80	46.10 *
Sidmouth, 2.	52.10	40.43	50.66	63.83	53.50	36.30	42.00	45.00	51.00	56.00	61.00	65.50	65.00	61.50	53.00	46.00	43.00 ¶
Torquay, 3.	. .	39.31	50.83	. .	. .	37.07	41.02	47.43	50.13	54.94	59.08	63.64	. .	. .	. .	. .	39.84 §
Undercliff, 4. (A.)	51.11	42.14	49.26	60.28	52.76	41.83	41.81	44.50	48.68	54.61	59.08	59.49	62.28	57.30	52.58	48.40	42.80 *
Hastings, 5.	51.00	40.11	45.77	60.45	51.00	38.11	39.88	39.89	44.88	52.55	58.86	60.88	61.61	57.23	51.34	44.44	42.34 *
Chichester, 6.	49.50	38.85	47.76	60.78	50.64	36.46	40.56	41.22	49 29	52.78	59.12	62.22	61.02	58.67	50.54	42.72	39.54 ¶
Gosport, 7.	50.24	40.44	47.63	62.00	50.88	40.44	40.94	42.94	47.00	53.00	61.00	63.00	62.00	58.00	50.20	44.45	38.94 ¶
London, 8. (A.)	50.39	39.12	48.76	62.32	51.35	37.36	40.44	42.64	48.00	55.64	60.00	63.43	63.52	58.80	51.78	43.47	39.58 *
Chiswick, 9.	50.50	39.30	49.33	62.36	51.03	36.50	40.70	43.50	48.80	55.70	60.80	64.00	62.30	57.60	51.80	43.70	40.70 *
Bushey Heath, 10.	49.82	38.62	47.06	61.48	51.46	37.95	38.60	40.10	47.60	53.50	59.15	64.20	61.10	59 60	50.70	44.10	39.30 ¶
Oxford, 11.	48.64	37.00	47.10	60.30	50.00	36.90	37.10	42.10	46.70	52.70	58.70	61.60	60.80	57.10	49.40	43.60	37.00 §
Cheltenham, 12.	51.32	40.60	50.28	64.32	50.96	38.25	41.75	46.18	50.50	54.16	61.50	66.33	65.12	59.06	50.32	43.50	41.75 ¶
Bristol, 13. (A.)	51.60	41.75	49.55	62.74	52.36	42.07	42.64	44.11	48.24	56.30	62.34	63.55	62.34	58.89	51.09	47.11	40.55 *
Helston, (Cornwall,) 14.	52.58	44.51	50.12	62.37	53.88	42.49	44.10	44.58	49.67	56.12	59.95	64.40	62·78	60.48	53.00	48.18	46.94 §
Exeter, 15.	51.40	42.00	49.70	61.90	51.90	40.80	43.00	45.30	48.50	55.50	60.00	63.60	62.00	57.30	52.50	46.00	42.30 *
New Malton, (Yorkshire,) 16	47.65	37.79	44.90	59.44	48.65	36.25	38.44	38.51	45.13	51.08	56.40	62.43	59.50	56.06	47.40	42.48	38.70 §
Alderley, (Cheshire,) 17. (A.)	46.80	37.58	45.80	57.10	48.26	36.75	38.50	41.00	45.10	51.30	56.45	57.75	57.20	54.30	48.10	42.40	37.50 ¶
Kendal, 18.	46.22	36.16	43.79	57.33	46.53	34.88	38.50	38.19	43.21	50.99	55.80	58.10	58.21	52.70	46.29	40.59	35.10 §
Bute, 19.	48.25	39.62	46.66	58.02	48 59	38.42	39.59	41.56	45.80	52.64	57.06	59.22	57.78	53.52	49.18	43.09	40.85
Leith, 20. (A.)	48.36	40.59	45.75	58.27	48.90	41.09	40.62	40.86	46.37	50.01	56.09	60.36	58.37	56.31	49.22	41.19	39.77 §
Edinburgh, 21. (A.)	47.31	39.40	44.70	57.30	47.86	40.17	39.54	39.60	45.84	48.67	54.85	59.31	57.74	55.61	48.37	39.60	38.50 ¶
Elgin, 22.	48 27	36.89	49.67	60.08	46 85	35.65	36.61	41.72	45.06	52.24	59.14	61.69	59.42	54.32	46.79	39.45	38.42 ¶
Kinfauns, 23.	47.02	39.82	44.60	56.82	46.80	41.25	39.85	38.65	45.17	49.96	55.61	58.39	56.48	53.43	46.38	40.58	38 35 ¶
Cove of Cork, 24.	51.58	43.90	49.43	61.26	51.73	43.50	44.40	45.40	48.20	54.70	60.20	61.90	61.70	56.80	51.60	46.80	43.80 *
Dublin, 25.	49.10	39.20	47.30	59.54	50.00	35.42	. .	. .	. .	. .	. .	61.16	. .	. .	. .	. .	. . §
County of Antrim, 26.	47.87	36.75	46.75	58 16	49.83	32.00	38.75	41.25	49.75	49.25	53.75	60.75	60.00	54.25	51.50	43.75	39.50 §
Jersey, 27.	53.06	43.82	50.97	62.84	54.63	41.58	44.62	45.75	50.09	57.08	61.31	63.50	63.72	59.82	55.65	48.42	45.27 *
Isle of Man, 28.	48.96	40.86	46.30	57.56	50.89	39.65	40.56	42.62	45.43	51.25	56.09	59.12	58.81	55.15	51.34	46.18	42.84 ¶

* Register Thermometer. ¶ Common Thermometer. § Doubtful.

TABLE I.—*Continued.*

FOREIGN CLIMATES.

NAMES OF THE PLACES.	Mean Annu Temp	Mean Tem. of Seasons.				MEAN TEMPERATURE OF EACH MONTH.											
		Win.	Spr.	Sumr.	Autm	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Geneva, 29. (A.)	49.89	33.83	48.90	64.99	50.97	32.00	35.50	41.50	47.20	58.00	62.70	66.56	65.70	59.70	50.70	42.50	34.00
Paris, 30. (A.)	51.50	38.43	50.40	64.47	52.30	35.60	40.50	43.50	49.60	58.10	62.50	65.70	65.20	60.40	52.40	44.20	39.20
Nantes, 31.	55.62	42.23	53.10	70.73	56.41	40.36	43.37	44.37	52.42	60.57	69.62	73.80	69.85	65.85	55.25	50.31	45.60
Bourdeaux, 32.	56.48	42.08	56.46	70.88	56.30	41.00	....	....	....	....	....	73.04	....	....	....	....	....
Pau, 33. (A.)	54.95	41.79	54.96	67.41	55.64	38.89	44 96	46.80	55.79	62.31	62.31	71.73	68.19	65.80	54.34	46.79	41.53
Montpelier, 34.	57.60	44.20	53.33	71.30	61.30	42.00	45.00	47.00	53.00	60.00	67.00	72.00	75.00	71.00	61.00	52.00	46.00
Avignon, 35. (A.)	58.20	42.60	57.13	74.66	59.00	42.00	43.50	50.50	55.00	66.00	72.00	76.00	76.00	67.00	60.00	50.00	43.30
Marseilles, 36. (A.)	59.50	45.50	57.56	72.50	60.08	44.80	45.06	49.07	....	....	....	....	....	....	58.20	50.40	46.60
Toulon, 37.	59.90	43.30	53.70	74.30	59.00	40.00	44.00	48.00	55.00	68.00	70.00	74.00	79.00	64.00	62.00	51.00	46.00
Nice, 38. (A.)	59.48	47.82	56.23	72.26	61.63	45.85	49.00	51.45	57.00	63.00	69.00	73.50	74.30	69.35	61.85	53.70	48.60
Genoa, 39.	60.37	44.57	58.60	75.03	62.94	41.65	47.47	51.07	60.30	64.45	73.50	75.10	76.50	73.20	64.70	51.05	45.60
Leghorn, 40. (A.)	60.00	46.30	57.60	74.10	62.00	43.50	45.90	51.70	56.80	64.30	70.60	75.80	76.00	74.80	58.20	53.20	47.70
Naples, 41. (A.)	61.40	48.50	58.50	70.83	64.50	46.50	48.50	52.00	57.00	66.50	71.00	75.00	76.50	72.50	65.00	54.50	50.50
Malta, 42.	67.50	57.33	63.50	78.16	71.00	56.50	56.50	58.50	63.00	69 00	74.00	79.00	81.50	77.50	70.50	65.00	59.00
Mediterranean, gen. tem. of, 43	67.11	57.63	65.50	76.25	69.10	57.23	57.60	62.64	63.88	70.00	72.08	76.63	80.05	75.28	69.71	62.31	58.05
Corfu, 44.	65.55	54.28	59.85	77.09	70.97	52.57	51.85	54.57	58.28	66.71	72.28	77.71	81.28	78.28	70.85	63.78	58.42
Baths of Lucca, 45.	55.00	....	....	68.17	....	....	....	....	53.00	60.50	63.00	70.00	71.50	66.00	....	....	....
Camajore, (Lucca,) 46. (A.)	58.07	44.70	56.32	71.66	59.58	43.60	45.00	50.00	55.70	63.25	68.25	74.00	72.75	67.75	59.50	51.50	45.50
Sienna, 47.	55.60	40.50	54.10	70.80	57.10	39.70	40.22	46.20	53.70	62.40	67.50	72.80	72.30	66.00	58.30	47.10	41.70
Florence, 48.	59.00	44.30	56.00	74.00	60.70	41.00	45.00	48.00	56.00	64.00	69.00	77.00	76.00	70.00	59.00	53.00	47.00
Pisa, 49.	60.60	46.03	57.20	75.15	62 80	44.00	48.11	51.52	56.30	63.75	70.50	77.50	77.50	73.50	62.62	52.30	47.00
Rome 50. (A.)	60.70	48.90	57.65	72.16	63.96	47.65	49.45	52.05	56.40	64.50	69.17	73.30	74.02	69.50	63.60	58.80	49.62
Cadiz, 51.	62.88	52.90	59.53	70.43	65.35	51.40	53.73	55.21	59.64	63.75	68.16	70.27	72.86	70.17	67.10	58.80	53.58
St. Michael's, (Azores,) 52.	62.40	57.83	61.17	68.33	62.33	59.00	59.00	59.50	61.00	63.00	67.00	68.00	70.00	68.00	63.00	56.00	55.60
Madeira, 53. (A.)	64.56	59.50	62.20	69.33	67.23	59.50	58.50	61.06	62.50	63.00	65.00	70.00	73.00	71.50	67.50	62.70	60.50
Santa Cruz, (Canaries,) 54.	70.94	64.65	68.87	76.68	74.17	63.84	64.29	67.17	67.32	72.12	73.89	77.27	78.89	77.43	74.66	70.43	65.82
Cairo, 55.	72.17	58.52	73.58	85.10	71.48	58.10	56.12	64.58	77.90	78.26	83.66	85.82	85.82	79.16	72.32	62.96	61.34

TABLE II.—Showing the difference between the mean temperature of each season and of each month.

NAMES OF THE PLACES.	Annual Mean Temperature.	Difference of the Mean Temperature of Winter and Summer.	Difference of the Mean Temperature of warmest and coldest months.	Mean Difference of Successive Months.	DIFFERENCE OF THE SUCCESSIVE SEASONS.				DIFFERENCE OF THE SUCCESSIVE MONTHS.										
					Of Winter and Spring.	Of Spring and Summer.	Of Summer and Autumn.	Of Autumn and Winter.	Of January and February.	Of February and March.	Of March and April.	Of April and May.	Of May and June.	Of June and July.	Of July and August.	Of August and September.	Of September and October.	Of October and November.	Of November and December.	Of December and January.
London,	50.39	23.20	26.17	4.36	9.64	13.56	11.00	12.22	3.08	2.20	5.36	7.64	4.36	3.43	0.10	4.73	7.00	8.31	3.89	2.22
Environs of London,	48.81	23.60	28.24	4.87	10.86	12.74	11.67	11.93	5.62	1.73	5.38	9.90	2.87	3.74	1.05	5.13	6.00	9.31	3.27	3.50
Undercliff,	51.11	18.14	20.47	3.41	7.12	11.02	7.52	10.62	0.02	2.69	4.18	5.93	4.47	0.41	2.79	4.98	4.72	4.18	5.60	0.97
Edinburgh,	47.31	17.90	20.81	3.65	5.30	12.60	9.44	8.46	0.63	0.06	6.24	3.17	6.18	4.48	1.57	2.13	7.24	8.77	1.10	1.67
Leith,	48.36	17.68	20.59	3.52	5.16	12.52	9.37	8.31	0.47	0.24	5.51	3.64	6.08	4.27	1.99	2.06	7.11	8.03	1.42	1.32
Bute,	48.25	18.40	20.80	3.46	7.01	11.39	9.43	8.97	1.17	1.97	4.24	6.84	4.42	2.16	1.44	4.26	4.34	6.09	2.24	2.43
England generally,	49.51	21.69	24.54	4.38	8.50	12.91	10.71	11.33	3.04	2.18	4.31	9.18	5.23	2.84	1.00	4.07	6.70	6.75	4.65	2.70
Scotland,	46.36	18.88	21.72	3.52	6.36	12.46	10.03	8.81	0.46	0.45	5.53	4.86	5.86	3.36	1.93	3.14	6.36	7.01	2.59	1.65
County of Antrim,	47.87	21.39	28.75	4.87	10.00	11.41	8.33	13.08	6.75	2.50	8.50	0.50	4.50	7.00	0.75	5.75	2.70	7.75	4.25	7.50
Cove,	51.58	17.36	18.40	3.06	5.53	11.83	9.53	7.83	0.90	1.00	2.80	6.50	5.50	1.70	0.20	4.90	5.20	4.80	3.00	0.30
Kendal,	46.22	21.17	23.33	3.94	7.63	13.54	10.80	10.37	3.62	0.31	5.02	7.78	4.81	2.30	0.11	5.51	6.41	5.70	5.49	0.22
Geneva,	49.89	31.16	34.56	5.76	15.7	16.09	14.02	17.14	3.50	6.00	5.70	10.80	4 70	3.86	0.86	6.00	9.00	8.20	8.50	2.00
Paris,	51.00	25.83	29.50	4.91	12.00	13.90	11.00	14.83	4.50	2.80	5.20	10.00	3.00	4.00	0.50	5.90	7.00	7.00	8.00	2.00
Penzance,	51.80	16.17	18.70	3.11	5.60	10.57	6.84	9.33	1.00	2.90	2.10	5.50	4.50	2.70	0.30	3.30	3.90	4.90	2.70	3.60
Southwest of France,	55.29	26.42	30.87	4.47	12.08	14.59	12.74	14.00	4.55	1.45	8.52	7.33	4.52	6.80	3.72	3.22	11.08	6.27	5.27	3.94
Southeast of France,	58.82	29.26	35.33	5.66	11.66	17.75	13.36	16.7	2.19	4.25	5.83	10.33	5.00	4.33	2.66	9.33	6.33	8.96	5.37	3.40
Nice,	59.48	23.57	28.22	4.70	9.50	14.52	10.01	13.60	3.07	2.72	4.20	7.40	5.00	4.25	2.00	4.00	9.50	7.00	5.05	2.90
Italy,	59.46	27.56	32.10	5.75	11.53	16.03	11.33	16.70	3.50	4.33	6.21	7.63	5.80	5.12	0.82	4.30	9.53	9.06	5.85	3.40
Madeira,	64.56	9.83	14.50	2.41	2.70	7.13	2.10	7.73	1.00	2.56	1.44	0.50	2.00	5.00	3.00	1.50	4.00	4.80	2.20	1.00
Santa Cruz,	70.94	12.03	15.05	2.51	4.22	7.81	2.51	9.52	0.45	2.88	0.15	4.80	1.77	3.38	1.62	1.46	2.77	4.23	4.61	2.00
Cairo,	72.17	26.58	27.72	5.50	15.06	11.58	13.62	13.00	2.00	8.46	13.32	0.36	5.40	2.16	0.00	6.66	6.84	10.64	1.61	3.24

TABLE III.—Containing the annual and monthly ranges of temperature.

NAMES OF THE PLACES.	Mean Annual Temperature.	An. Range.			Mean of the Monthly Ranges.	January			February			March			April			May			June			July			August			Sept.			October			Novem.			Decem.		
		Range.	Max. of Year.	Min. of Year.		Rng.	Maximum	Minimum	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.	Rng.	Maximum	Minim.
London, 8. (B.) . .	50.39	*64	86	22	*34	28	50	22	27	52	25	32	61	29	37	69	32	39	75	36	48	86	38	33	77	44	38	82	44	35	75	40	33	65	32	30	57	27	30	54	24
Alderly, 17. (B.) . .	46.80	*58	76	18	*34	32	50	18	30	52	22	35	58	23	39	66	27	39	71	32	37	76	39	31	74	43	32	74	42	37	73	36	30	62	32	31	56	25	32	51	19
Environs of London, 8*a*. (A)	48.81	*67	83	16	*38	33	49	16	35	54	19	36	60	24	43	69	26	45	78	33	41	80	39	42	83	41	37	79	42	41	75	34	38	68	30	34	56	22	33	53	20
Gosport, 7. . . .	50.24	*66	80	14	*31	34	54	20	42	56	14	28	60	32	35	70	35	32	72	40	30	75	45	27	80	53	29	77	48	24	73	49	33	68	35	35	62	27	26	57	31
Cheltenham, 12. . .	51.32	*60	85	25	*31	25	50	25	23	53	30	33	61	28	36	68	32	35	71	36	36	79	43	38	85	47	33	81	48	31	74	43	30	65	35	28	57	29	27	55	28
Undercliff, 4. (B.) . .	51.11	*55	81	26	*28	25	52	27	24	52	28	31	57	26	37	70	33	38	74	36	27	74	47	23	71	48	31	81	50	29	73	44	26	65	39	23	57	34	27	53	26
Sidmouth, 2. . . .	52.10	*53	74	21	*30	26	47	21	25	52	27	30	56	26	29	60	31	28	66	38	32	73	41	32	74	42	32	74	42	32	71	39	33	64	31	30	57	27	29	54	25
Penzance, 1. (B.) . .	51.80	*49	76	27	*23	25	53	28	23	54	31	24	58	34	26	62	36	26	67	41	25	71	46	23	73	50	21	71	50	22	68	46	22	63	41	21	57	36	22	55	33
Cove, 24. . . .	51.58	47			*26	23	53	30	21	54	33	28	59	31	28	61	33	31	69	38	27	73	46	28	76	48	26	74	48	27	70	43	28	63	35	23	57	34	24	54	30
Bute, 19. (B.) . .	48.25	60	80	20	31	29	49	20	31	51	20	26	54	28	31	60	29	34	69	35	33	74	41	35	80	45	39	80	41	33	69	36	29	60	31	27	54	27	23	51	26
Pau, 33. . . .	54.95	68	89	21	28	35	56	21	25	60	35	30	65	35	28	71	43	29	80	51	28	80	52	30	89	59	24	82	58	30	82	52	24	70	46	25	64	39	31	56	25
Montpelier, 34. . .	57.60	59	86	27	23	26	53	27	25	55	30	23	58	35	23	64	41	22	71	49	24	80	56	23	85	62	21	86	65	20	75	55	23	71	48	22	62	40	25	57	32
Nice, 38. . . .	59·48	60	87	27	21	31	58	27	21	58	37	24	65	41	23	69	46	26	77	41	20	78	58	15	81	66	18	87	69	21	82	61	22	70	48	18	61	43	19	59	40
Rome, 50. . . .	60.70	62	91	29	28	29	58	29	27	60	33	28	65	37	30	74	44	28	80	52	28	88	60	27	91	64	29	91	62	30	85	55	31	77	46	28	67	39	29	60	31
Naples, 41. . . .	61.40	64	93	29	29	29	58	29	29	60	31	31	69	38	35	78	43	35	86	51	32	88	56	29	93	64	29	91	62	28	88	60	28	79	51	20	64	44	27	61	34
Madeira, 53. (B.)† . .	68.89	23	77	54	12	12	68	56	11	68	57	13	67	54	13	71	58	15	75	60	14	76	62	12	77	65	10	77	67	11	77	66	11	76	65	12	71	59	11	69	50
Idem, (?) . . .	64.56	*35	85	50	*18	19	69	50	17	68	51	18	69	51	17	27	55	20	75	55	15	85	73	13	76	63	17	82	65	21	85	64	19	77	58	20	72	52	16	68	52

* The observations made in England, as denoted by the asterisk, were made with the register thermometer, and consequently, give a much greater range there than abroad, where, with the exception of Madeira, the observations are confined to the day.

TABLE IV.—Containing the daily range of temperature.

Names of the places.	Annual Mean Tem.	Range of daily Temp. for the year.		January		Feb.		March		April		May		June		July		August		Sept.		October		Novem.		Decem.	
		Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range.	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range	Mean daily Range	Extreme daily Range
London, 8. (c.)	50.39	*11	—	7	—	9	—	11	—	13	—	16	—	18	—	16	—	7	—	13	—	11	—	8	—	7	—
Leith, 20. (b.)	48.36	6	—	3	—	4	—	6	—	10	—	8	—	8	—	10	—	8	—	8	—	5	—	4	—	2	—
Alderley, 17. (c.)	46.80	6.6	—	5	—	6	—	8	—	9	—	8	—	7	—	6	—	6	—	8	—	6	—	4	—	4	—
Env. of Lond. 8 *a* (b)	48.81	*15	—	9	—	12	—	14	—	19	—	19	—	20	—	19	—	18	—	18	—	15	—	11	—	10	—
Chiswick, 9.	....	*15	—	9	—	7	—	12	—	17	—	18	—	17	—	23	—	24	—	18	—	16	—	12	—	9	—
Gosport, 7.	50.24	6.1	*25	6	18	7	21	6	24	7	22	5	21	6	24	7	25	7	23	7	24	5	21	5	19	5	17
Undercliff, 4.	51.11	10	—	7	—	7	—	10	—	14	—	14	—	12	—	9	—	11	—	8	—	9	—	7	—	7	—
Sidmouth, 2.	52.10	....	16	—	13	—	12	—	12	—	13	—	11	—	16	—	10	—	9	—	11	—	15	—	11	—	13
Penzance, 1. (c.)	51.80	6.7	—	4	—	6	—	8	—	9	—	9	—	8	—	8	—	8	—	7	—	6	—	5	—	3	—
Bute,†	49.29	*9	26	6	15	7	15	9	21	11	21	14	25	13	26	12	25	13	25	11	23	8	20	7	14	6	11
Cove, 24.	51.58	10.10	—	6	—	7	—	11	—	12	—	11	—	14	—	13	—	12	—	10	—	8	—	7	—	5	—
Geneva, 29. (b.)	49.89	12.5	—	7	—	10	—	13	—	15	—	16	—	16	—	16	—	17	—	14	—	11	—	8	—	7	—
Nantes, 31.	55.62	5.7	—	3	—	4	—	5	—	8	—	3	—	6	—	10	—	7	—	9	—	6	—	4	—	4	—
Pau, 33. (b.)	54.95	7.6	20	7	16	9	16	9	17	8	18	10	16	8	15	8	20	5	14	7	14	5	14	8	15	7	13
Montpelier, 34.	57.60	12.0	—	8	—	9	—	14	—	14	—	14	—	15	—	15	—	17	—	13	—	12	—	10	—	9	—
Avignon, 35. (b.)	58.20	12.5	—	8	—	8	—	10	—	12	—	15	—	19	—	19	—	17	—	15	—	12	—	8	—	7	—
Nice, 38. (b.)	59.60	8.5	18	8	16	9	18	9	17	11	18	10	16	8	14	10	15	11	12	8	16	7	16	6	17	6	14
Camajore, 46.	58.07	10.8	—	7	—	9	—	10	—	11	—	12	—	14	—	14	—	13	—	12	—	11	—	7	—	6	—
Sienna, 47.	55.60	15.0	—	11	—	14	—	16	—	19	—	21	—	17	—	17	—	17	—	16	—	14	—	11	—	10	—
Rome, 50. (b.)	60.70	11.0	20	11	16	10	18	12	19	10	20	10	17	9	16	11	16	13	18	12	17	14	20	10	17	9	15
Naples, 41. (b.)	61.40	13.3	23	9	14	11	19	11	18	14	20	17	21	16	22	16	23	17	21	15	21	14	18	11	14	9	13
Madeira, 53. (c.)	64.56	*10.0	17	11	17	9	13	10	14	9	13	8	11	8	10	10	12	12	15	16	17	10	16	10	15	11	14

* The asterisk indicates where the observations were made by a register thermometer, and thus give the range of night and day; the others of the day only.

† As regards Bute, the asterisk indicates that the observations give the whole range of the twenty-four hours, as registered hourly night and day.

TABLE V.—Variations of Temperature between each successive day, for each month and for the whole year.

		London, 8. D	Chiswick, (nr. London,) (9.	Under-cliff, 4.	Penzance, 1. (D.)	Bute.	Cove, 24.	Pau- 33. (C.)	Nice, 38. (C.)	Florence, 48.	Leghorn, 40.	Rome, 50. (C.)	Naples, 41. (C.)	Madeira, 53. (D.)
Mean Annual Temperature,		50.39	50.50	51.11	51 89	49.29	51 58	54.95	59.48	59.00	60.03	60.70	61.40	64.53
Varns. for the year.	Mean Variation of successive days	4.01	4.03	3.75	2.68	3.59	2.2	3.55	2.33	2.90	2.44	2.80	3.26	1.11
	Mean of the Extreme Variations — Rise	14.33	16.00		8.64	12.75	6.0	8.90	6.22	7.60	8.10	8.20	7.02	5.00
	Mean of the Extreme Variations — Fall	14.83	14.40			12.41		10.90	7.26	8.01	7.74	8.00	8.69	5.40
	Absolute Extreme Variations — Rise	18.00	22.00		10.00	16.00	8.5	10.50	11.20	10.00	12.00	13.80	8.80	8.00
	Absolute Extreme Variations — Fall	21.00	18.00			15.00		13 50	12.25	11.00	12.80	15.30	10.75	8.00
January	Mean Variation	5.10	3.80	3.37	3.74	3.47	2.9	3.84	2.00	3.30	3.43	3.03	2.80	1.83
	Greatest Rise	16.00	14.00		10.50	15.00	8.0	10.30	8.20	10.00	12.00	9.50	7.50	6.00
	Greatest Fall	15.00	12.00			12.00		10.00	6.40	9.25	12.80	8.40	8.00	8.00
February	Mean Variation	3.20	4.20	3.31	3 26	5.43	2.3	4.16	3.00	2 60	2 41	3.02	2 80	1.40
	Greatest Rise	12.00	16.00		10.00	15.00	4.3	10.50	11.20	7.30	8.60	8 60	6.60	8.00
	Greatest Fall	8.00	16.00			10.00		9.83	12.25	7.00	8.42	8.20	10.75	5.00
March	Mean Variation	3.38	4.00	3.80	3.15	3.28	2.3	3.42	2.40	3.00	2.10	2.80	4.00	0.90
	Greatest Rise	15.0	18.0		10.5	16.00	7.3	9.83	8.00	9.12	8.40	7.50	6.60	4.00
	Greatest Fall	12.0	16.0			13.00		11.16	8.00	7.50	7.10	8.00	9.50	6.00
April	Mean Variation	4.00	4.40	4.38	2.52	3.09	2.1	4.24	4.00	2.80	3.33	2.82	2.90	1.30
	Greatest Rise	12.0	18.0		8.00	10.60	5.6	9.83	8.40	8.00	8.95	8.40	7.80	5.00
	Greatest Fall	21.0	14.0			15.00		11.66	8.60	8.60	8.90	9.00	8.20	8.00
May	Mean Variation	3.80	3.70	4.19	2.09	3.29	1.6	4.00	2.20	3.00	2.33	2.80	4.00	0.90
	Greatest Rise	17.0	14.0		5.60	11.00	5.5	7.50	4.60	8.00	6.65	7.80	8.35	4.00
	Greatest Fall	13 0	13.0			14.00		13.50	6.40	10.00	5.35	7.20	8.80	5.00
June	Mean Variation	4.04	3.80	4.26	1.61	3.35	1.6	3.76	2.20	2.60	1.30	2.40	3.60	0.80
	Greatest Rise	15.0	13.0		5.60	12.00	3.3	10.30	5.00	9.25	3.70	8.00	7.60	4.00
	Greatest Fall	20.0	12.0			13.00		8.88	7.25	5.50	3.30	8.20	8.80	3.00
July	Mean Variation	3.50	3.70	3 30	1.46	3.26	3.1	4.23	1.50	3.00	2.50	2.40	3.00	0.70
	Greatest Rise	12.0	14.0		5.00	10.00	5.3	10.16	3.50	7.00	10.00	6.90	6.40	0.20
	Greatest Fall	12.0	14.0			14 00		12.80	4.60	11.00	8.00	9.50	8.60	0.30
August	Mean Variation	3.20	3.40	3.59	1.27	3.42	3.1	3.23	1.50	2.15	1.50	2.06	2.40	0.80
	Greatest Rise	15.0	13.0		4.60	15.00	5.1	7.80	4.20	4.00	4.00	8.60	8.80	3.00
	Greatest Fall	14.0	12.0			12.00		10.30	5.25	7.00	4.00	7.25	6.80	5.00
September	Mean Variation	3 50	4.30	3.96	2.55	3.80	1.8	2.91	1.75	2.20	2.67	2.66	2.40	1.23
	Greatest Rise	11.0	16.0		9.20	12.00	6.0	7.66	6.20	5.80	8.00	6.40	6.00	4.00
	Greatest Fall	17.0	14.0			12.00		13.00	6.80	8.05	10.00	8.60	8.40	5.00
October	Mean Variation	4.30	4.90	4.11	3.02	3.51	2.3	2.74	2.60	3.50	2.80	3.00	4.00	1.13
	Greatest Rise	12.0	22.0		9.00	13.00	6.6	6.80	5.25	7.75	10.00	8.00	5.80	3.00
	Greatest Fall	15.0	18.0			12.00		10.50	7.75	8.00	10.00	9.25	8.20	5.00
November	Mean Variation	4.70	4.20	3.46	3.18	3.61	2.4	2.47	1.90	3.75		3.50	1.90	1.10
	Greatest Rise	18.0	17.0		11.25	13.00	8.1	6.80	5.00	6.60		8.80	4.60	6.60
	Greatest Fall	17.0	17.0			12.00		8.66	7.50	8.00		11.60	9.50	6.00
December	Mean Variation	4.80	4.00	3.33	4.41	3.64	2.6	3.67	2.40	2.80	2.45	3.45	3.00	1.23
	Greatest Rise	17.0	16.0		12.50	11.00	6.0	9.33	6.00	8.25	8.90	10.50	8.20	4 00
	Greatest Fall	14.0	15.0			10.00		11.16	6.40	6.25	7.25	9.25	8.60	6.00

TABLE VI.—Account of the temperature experienced by an invalid confined to the house at Nice and Torquay, compared with the temperature of the external air.

	Exposure of Apartments	NOVEMBER.					DECEMBER.					JANUARY.				
		Mean Temperature.	Range of Temperature. Monthly.	Range of Temperature. Daily Mean.	Range of Temperature. Daily Extreme.	Variation of Tem. of successive days Mean.	Variation of Tem. of successive days Extreme.	Mean Temperature.	Range of Temperature. Monthly.	Range of Temperature. Daily Mean.	Range of Temperature. Daily Extreme.	Variation of Tem. of successive days. Mean.	Variation of Tem. of successive days. Extreme.	Mean Temperature.	Range of Temperature. Monthly.	Range of Temperature. Daily Mean.	Range of Temperature. Daily Extreme.	Variation of Tem. of successive days. Mean.
Nice . . 1826–7.	South . .	59.94	13	3	3	1.70	6	60.89	10	4	6	0.93	5	55.28	14	3	6	1.60
Inter. Temp. [Fire only at night.]																		
Exter. Temp.	. . . . .	53.70	18	6	17	1.90	8	48.60	19	6	14	2.40	6	45.85	31	8	16	2.60
Torquay 1827–8.	North . .	63.90	7	1	4	0.83	3	64.52	6	2	4	0.83	3	63.56	6	1	4	0.78
Inter. Temp. [Fire almost constantly.]																		
Exter. Tem.	. . . . .	49.90	29	5	10	3.50	19	48.36	18	5	12	4.00	14	45.91	25	5	13	3.40

	Exposure of Apartments	FEBRUARY.					MARCH.					APRIL.				
		Mean Temperature.	Range of Temperature. Monthly.	Range of Temperature. Daily Mean.	Range of Temperature. Daily Extreme.	Variation of Tem. of succes sive days. Mean.	Variation of Tem. of succes sive days. Extreme.	Mean Temperature.	Range of Temperature. Monthly.	Range of Temperature. Daily Mean.	Range of Temperature. Daily Extreme.	Variation of Tem. of succes-sive days. Mean.	Variation of Tem. of succes-sive days. Extreme.	Mean Temperature.	Range of Temperature. Monthly.	Range of Temperature. Daily Mean.	Range of Temperature. Daily Extreme.	Variation of Tem. of succes-sive days. Mean.
Nice . . 1826–7.	South . .	58.72	9	4	6	1.06	5	62.70	7	2	3	0.79	3	63.40	6	1	2	0.63
Inter. Temp. [Fire only at night.]																		
Exter. Temp.	. . . . .	49.00	21	9	18	3.0	12	51.45	24	9	17	2.40	8	57.00	23	11	18	4.00
Torquay 1827–8.	North . .	62.60	11	3	7	1.08	4	63.16	9	3	7	0.85	5	64.64	6	2	5	0.76
Inter. Temp. [Fire almost constantly.]																		
Exter. Tem.	. . . . .	45.48	29	6	16	3.45	11	48.20	23	8	13	3.20	18	52.82	26	11	12	2.50

	Exposure of Apartments	APRIL.
		Extreme.
Nice . . 1826–7.	South . .	3
Inter. Temp. [Fire only at night.]		
Exter. Temp.	. . . . .	9
Torquay 1827–8.	North . .	3
Inter. Temp. [Fire almost constantly.]		
Exter. Tem.	. . . . .	9

TABLE VII.—Showing the range of the barometer for each month and for the whole year.

Names of the places.	Annual Mean Temperature.	Annual Mean Height of Barometer.	Range for the whole Year.	Range for each month.												Names of observers, periods of observation, &c.
				Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
London . .	0.39	*29.895	1.998	1.429	1.350	1.299	1.070	0.914	0.830	0.691	0.759	0.898	1.158	1.458	1.450	Howard, 1806—1816.
Idem . .	....	.....	....	1.600	1.360	1.260	1.110	1.090	0.640	0.790	0.730	0 880	1.380	0.920	1.130	Daniell, 1819—1823.
Edinburgh .	47.31	*29.624	....	1.850	1.700	1.000	0.950	0.900	0.600	0 850	1.250	1.300	1.400	1.150	1.500	Medical Observations, 1734—5.
County of Antrim	47.87	29.530	....	1.400	1.400	1.700	1.100	0.900	0.800	0.700	0.700	1.300	1.200	1.100	1.600	Edinburgh Medical Journal.
Kendal . .	48.03	29.630	2.060	1.190	1.510	1.630	0.710	0.840	0.870	0.760	1.080	1.060	1.260	0.960	1.890	S. Marshall, Esq. 1827: *Phil. Mag.*
Alderley, Cheshire	46.80	29.460	1.700	1.685	1.355	1.410	1.200	0.965	0.867	0.787	0.875	0.974	1.230	1.395	1.575	Rev. E. Stanley, 1815—1824.
Cheltenham .	51.32	29.627	1.550	1.150	0.910	1.100	1.080	0.630	0.690	0.550	0.810	0.900	1.060	1.210	1.000	Moss, 1825–26.
Gosport . .	50.24	29.900	1.790	0.970	0.950	1.510	0.840	1.000	0.690	0.700	1.030	0.840	1.290	1.120	1.510	Dr. Burney, 1827.
Sidmouth .	52.10	29.964	....	1.410	0.990	1.310	1.000	3.850	0.780	0.790	0.710	0.600	1.240	1.140	1.390	Dr. Clarke, 1812—1814.
Penzance . .	51.80	29.620	1.950	1.360	1.070	1.080	0.940	0.600	0.670	0.763	0.680	0.990	0.940	0.940	1.140	Dr. Forbes, 1818–19.
Bute . .	48.25	29.88	2.51	2.30	1.59	1.43	1.29	1.29	1.11	1.00	1.07	1.13	1.70	1.66	2.38	R. Thom, Esq.
Nantes . .	55.62	*29.830	1.817	1.172	1.376	1.021	1.419	1.110	0.843	0.588	0.532	0.795	1.332	0.706	1.065	Huette, 1824–5.
Montpelier .	57.60	29.747	....	0.917	0.854	0.751	0.588	0.464	0.676	0.464	0.397	0.532	0.706	0.843	0.917	M. Mejan.
Milan . .	55.80	29.579	1.279	0.961	0.958	0.871	0.788	0.614	0.439	0.437	0.435	0.435	0.614	0.871	0.958	L'Abbate Cesaris, 1763—1817.
Genoa . .	....	.....	....	0.706	1.065	0.917	0.532	0.444	0.353	0.588	0.444	0.588	0.588	....	....	J. Fratelli Mojon, 1802.
Florence . .	59.00	29.884	1.508	1.065	0.977	0.588	0.799	0.588	0.397	0.400	0.464	0.751	1.332	0.706	1.065	Ximenian Observatory.
Rome . .	60.70	29.893	1.221	0.843	0 854	0.977	0.676	0.588	0.442	0.397	0.360	0.532	0.676	0.751	0.917	Calandrelli, 1811—1823.
Naples . .	61.40	29.554	1.154	0.888	0.843	0.888	0.710	0.355	0.552	0.266	0.355	0.488	0.532	0.621	0.621	Broschi, 1821—1824.
Madeira . .	64.56	*30.030	1.211	0.618	0.667	0.659	0.482	0.500	0.258	0.373	0.260	0.311	0.427	1.010	6.700	Heineken, 1826.

* The asterisk marks where correction is made for the expansion of mercury by the heat.

TABLE VIII.—Mean quantities of rain, in inches and parts of inches, for each month and the whole year.

Names of the Places.	Mean Annual Temperature.	Mean Annual Quantity of Rain.	Ratio of the Mean Annual Temperature to the Annual Quantity of Rain.	Average Number of Days on which Rain Falls.	Mean Monthly Quantities of Rain.												Names of Observers, Periods of Observation, &c.
					Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
London	50.39	*20.686	2.4350	178	1.464	1.250	1.172	1.276	1.636	1.738	2.448	1.807	1.848	2.092	2.222	1.730	Dalton, 40 years.
Idem	....	24.864	2.0315	178	1.959	1.482	1.296	1.692	1.892	1.920	2.637	2.125	1.921	2.522	2.598	2.427	Howard, 20 years.
Edinburgh	47.31	23.500	2.06 -	..	1.090	1.360	0.880	0.990	1.940	2.030	0.860	1.690	2.230	3.460	1.140	2.830	Adie, 1824, 1825.
Kinfauns	47.02	24.060	1.9542	137	1.400	1.200	1.120	1.700	1.500	2.250	1.050	1.850	2.270	3.070	3.600	3.050	Lord Gray, 1824, 1825.
Glasgow	....	21.331	....	..	1.595	1.741	1.184	0.979	1.641	1.343	2.303	2.746	1.617	2.297	1.904	1.981	Dalton, 17 years.
Dumfries	....	36.919	....	..	3.095	2.83	2.164	2.017	2. 68	2.974	3.256	3.199	4.350	4.143	3.174	3.142	Idem, 16 years.
Bute	48.25	38.500	....	157	2.87	3.0	3.46	1.	1.78	2 03	3.00	3.42	3.77	4.32	4.50	4.43	19 years.
Kendal	46.32	53.944	0.8565	176	5.299	5.126	3.151	2. 98	3.480	2.722	4.959	5.039	4.874	5.439	4.785	6.084	Dalton, 25 years.
Alderney, Cheshire	46.80	32.889	1.4230	188	1.786	2.125	2.843	2.0	2.559	2.742	3.4 8	3.153	2 565	3.125	3.205	3.238	E. Stanley, 1815—1824.
Lancaster	....	39.714	....	..	3.461	2.9	1.753	2.180	2.460	2.512	4.140	1.581	3.751	4.151	3.775	3.955	Dalton, 20 years.
Liverpool	....	34.118	....	..	2.177	1.84	1.523	2.104	2.573	2.816	3.663	3.311	3.654	3.724	3.441	3.288	Idem, 18 years.
Manchester	....	36.140	....	..	2 310	2.568	2.098	2. 1	2.895	2.502	3.097	3.665	3.281	3.922	3.360	3.832	Idem, 33 years.
Chatsworth	...	27.664	....	..	2.196	1.652	1.322	2.078	2.118	2.286	3.006	2.435	2.289	3.079	2.634	2.569	Idem, 16 years.
New Malton	47.65	36.740	1.2964	137	1.160	1.220	2.830	2.110	2.270	2.720	1.170	2.850	5.610	6.250	4.380	4.170	Stockton, 1824. Phil. Mag.
Bushey Heath	49.82	30.596	1.5344	..	0. 49	3.694	1.364	2.133	3.710	3.970	1.729	2.433	5.260	2.862	2.546	2.746	Col. Beaufoy, 1824, 1825.
Isle of Man	48.96	37.650	....	155	3.050	2.740	2.950	2.490	1.400	1.810	1.840	3.030	3.080	4.490	5.220	5.550	R. Stewart, Esq. 1824-28.
Bristol, 13. (B)	51.60	32.560		160	2.120	2.770	2.120	2.040	1.530	3.020	3.480	2.940	2.730	2.880	3.390	3.540	Bristol Institution.
Gosport	50.24	29.965	1.6800	..	1.000	0.820	3.145	1.910	2.125	1.660	1.115	2.060	3.835	4.835	1.835	5.625	Dr. Burney, 1827.
Hastings	51.00	28.340		..	2.270	1.770	1.520	0.900	1.440	1.670	2.370	2.010	3.940	2.700	4.340	3.400	3 and 4 years.
Sidmouth	52.10	27.290	1.9095	135	3.850	2.340	0.500	2.500	1.670	2.030	2.280	1.180	1.750	3.500	1.990	2.700	Dr. Clarke, 1813, 1814.
Undercliff	51.11	26.230			2.210	1.380	1.230	0.770	1.830	1.390	2.840	1.850	3.060	2.860	4.230	2.610	Dr. Martin, 3 years.
Helston	52.58	36.970	....	165	3.300	3.305	3.500	1.970	2.800	2.100	1.800	2.830	3.030	3.800	4.000	4.670	Mr. Moyle, 1821, 1828.
Penzance	51.80	44.715		179	3.775	3.305	3.477	2.985	2.905	2.4	3.111	3.800	3.747	4.687	4.918	5.575	Mr. E. Giddy, 12 years.
Cove	51.60	33.299		138	3.578	4.048	1.931	1.294	0.835	2.215	3.142	1.712	2.453	2.270	5.382	2.939	Dr. Scott, 3 years.
Paris	51.00	*18.694	2.7347	..	1.228	1.232	1.190	1.185	1.767	1.697	1.800	1.900	1.550	1.780	1.720	1.600	Dalton, 15 years.
Toulouse	52.50	25.120	2.0900	..													
Montpelier	57.60	29.898	1.9265	82	2.131	1.621	3.730	2.664	2.664	1.250	0.399	0.666	1.621	3.375	4.929	4.841	Poiteven, 1796—1806.
Marseilles	59.50	*15.610	3 2718	55	1.705	0.756	0.852	0.650	0.959	0.756	1.705	0.959	1.833	2.558	1.598	1.270	Blanpain, 10 years.
Toulon	59.90	19.712	3.0387	..	2.131	1.065	1.332	1.598	1.598	0.621	0.355	0. 21	2.576	2.753	2.664	2.398	Burel, 33 years.
Turin	53.50	3 .898	1.6000	..	1.508	0.581	2.079	4.319	4.189	4.492	3.592	2.727	2.639	3.408	2.116	1.248	Vassali Eandi, 1803—1818.
Milan	55.80	3 .838	1.4700	..	2.842	2.024	2.306	3.090	3.730	3.197	2.839	3.016	3.197	4.156	4.351	3.090	Cesaris, 1763—1807.
Florence	52.00	*31.687	1.8556	103	3.581	0.991	3.273	2.036	3.485	1.961	1.151	0.660	2.515	3.273	3.678	5.083	Ximenian Observ. 1824-25.
Rome	60.70	*31.173	1.9471	117	4.263	1.687	2.043	1.776	2.486	1.687	1.243	1.243	2.309	5.507	3.375	3.553	Calandrelli, 1811—1823.
Madeira	64.56	25.026	2.5600	73	3.217	1.757	1.510	1.520	1.072	0.347	0.372	0.405	1.067	2.082	8.577	3.100	Dr. Heineken, 1825—1827.

* The Asterisk denotes those places where the rain-guage stood at a considerable height above the ground.

TABLE IX.—Showing the relative prevalence of different kinds of weather for each month, and for the whole year.

Names of the places.	Days on which each particular kind of weather prevails during the year			Number of days during which the different kinds of weather have prevailed in each month.																																Names of observers, periods of observation, &c.
				January			February			March			April			May			June			July			August			Sept.			October			Novem.			Decem.		
	Fine.	Cldy. or Variable.	Days on wch. any rain falls	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	Fine.	Cldy. or Var.	Rain falls.	
London . .	—	—	178	—	—	14	—	—	16	—	—	13	—	—	14	—	—	16	—	—	12	—	—	16	—	—	16	—	—	12	—	—	16	—	—	15	—	—	18	Howard, 1807–16.
Kinfauns . .	218	—	147	—	—	8	—	—	10	—	—	11	—	—	9	—	—	10	—	—	9	—	—	7	—	—	12	—	—	15	—	—	18	—	—	11	—	—	17	Lord Gray, 1824–5.
County of Antrim	156	54	155	15	2	14	10	4	14	13	4	14	12	1	17	25	—	6	17	1	12	11	4	16	4	7	20	23	1	6	10	9	12	7	11	12	9	10	12	Edinb. Med. Jour.
Cove . .	—	—	138	—	—	11	—	—	14	—	—	10	—	—	10	—	—	8	—	—	13	—	—	11	—	—	10	—	—	15	—	—	12	—	—	14	—	—	10	Dr. Scott.
Undercliff 4. (c)	—	—	144	—	—	16	—	—	16	—	—	8	—	—	4	—	—	7	—	—	10	—	—	13	—	—	7	—	—	16	—	—	11	—	—	19	—	—	10	Dr. Martin, 1839–40.
Bristol, 13. (c) .	—	—	160	—	—	12	—	—	14	—	—	11	—	—	12	—	—	9	—	—	14	—	—	13	—	—	14	—	—	16	—	—	13	—	—	14	—	—	15	Bristol Ph. Ins. 1827–36.
New Malton, Yks.	228	—	137	—	—	6	—	—	6	—	—	13	—	—	11	—	—	11	—	—	10	—	—	5	—	—	11	—	—	12	—	—	16	—	—	20	—	—	16	Mr. Stockton, 1823–4.
Alderley, Cheshire	177	—	188	—	—	14	—	—	15	—	—	18	—	—	14	—	—	16	—	—	14	—	—	17	—	—	17	—	—	15	—	—	17	—	—	16	—	—	15	Rev. E. Stanley.
Clifton . . .	156	60	149	10	6	15	13	—	15	15	3	13	10	10	10	12	7	11	14	3	13	18	5	8	18	3	8	18	4	9	10	7	14	14	5	11	8	7	16	Dr. Chisholm, 1814–15.
Sidmouth .	196	34	135	14	7	10	12	2	14	16	3	12	19	1	10	16	6	9	17	1	12	17	2	12	21	1	9	20	2	8	14	1	16	13	5	12	17	3	11	Dr. Clarke, 1812–14.
Penzance . .	119	91	155	14	—	17	13	—	15	18	—	13	20	—	10	17	—	14	20	—	10	19	—	12	18	—	13	18	—	12	16	—	15	13	—	17	13	—	18	Forbes, 1807–20.
Idem . .	114	87	164	15	—	16	13	—	15	18	—	13	20	—	10	18	—	13	19	—	11	18	—	13	18	—	13	16	—	14	16	—	15	13	—	17	13	—	18	Mr. E. C. Giddy, 21 yrs.
Nantes . .	144	115	106	12	12	7	9	11	8	10	10	11	15	8	7	12	9	10	18	7	5	20	6	5	15	7	9	15	8	7	10	10	11	4	14	12	4	15	12	Huette, 1824–5.
Pau . . .	155	101	109	13	13	5	10	9	9	17	4	10	9	10	11	14	10	7	8	9	13	18	6	7	12	12	7	14	7	9	14	5	11	17	4	9	9	12	10	Christison, 1822–4.
Toulouse . .	—	—	113	—	—	10	—	—	12	—	—	11	—	—	9	—	—	13	—	—	7	—	—	8	—	—	6	—	—	9	—	—	12	—	—	12	—	—	11	
Montpelier .	—	—	80	—	—	8	—	—	5	—	—	6	—	—	7	—	—	7	—	—	6	—	—	3	—	—	3	—	—	5	—	—	6	—	—	8	—	—	8	Poitevain, 1796–1806.
Marseilles .	180	130	55	—	—	5	—	—	4	—	—	5	—	—	4	—	—	4	—	—	4	—	—	3	—	—	2	—	—	5	—	—	7	—	—	6	—	—	6	Thulis and Blanpain.
Genoa . .	—	—	—	9	5	17	15	6	7	13	9	9	15	11	4	13	11	7	16	10	4	20	9	2	15	11	5	12	10	8	9	8	14	—	—	—	—	—	—	J. Fratelli Mojon.
Camajore .	166	75	123	12	7	12	12	6	10	18	10	3	13	7	10	15	7	9	16	5	9	21	4	6	21	4	7	16	5	9	12	6	13	9	7	14	10	7	14	Butori, 1777–1816.
Florence . .	164	98	103	19	2	10	9	8	11	12	11	10	14	4	12	13	9	9	11	4	15	26	4	1	23	6	2	12	11	8	6	13	12	10	12	8	9	12	9	Ximenian Observ. 1825.
Pisa . . .	—	—	—	17	—	14	17	—	11	22	—	9																16	7	7	12	7	12	16	9	5	11	13	7	Piazzini, 1815–7.
Rome . .	197	51	117	13	5	13	14	5	9	15	6	11	15	6	9	17	5	10	18	5	7	23	3	5	23	3	5	18	4	8	15	2	14	14	4	12	13	5	13	Calandrelli, 1811–23.
Naples . .	210	58	97	17	3	11	17	5	6	13	8	10	17	6	8	18	7	6	17	4	9	29	1	1	16	3	12	17	5	8	17	3	11	18	6	6	15	5	11	Broschi, 1821–4.
Madeira . .	201	91	73	10	6	15	21	7	—	17	6	9	21	7	2	17	6	8	12	17	1	20	8	3	23	8	—	9	10	11	19	5	7	10	3	17	12	13	6	Heineken, 1826.

TABLE X.—Meteorological table for Bute, from 1821 to 1839, inclusive, deduced from registers of observations made (hourly for twelve of the nineteen years) at Rothsay cotton mills, and at Ascog, by Robert Thom, Esq.

Months.	Barometer.			Thermometer.				Direction of Wind.								Rain	State of the Weather.							
	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Greatest difference	Northwest.	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Inches.	Fair.	A little rain or showery.	Mostly wet.	Some snow.	Calm or moderate.	Smart breeze.	High wind.	Stormy.
January . .	30.59	28.29	29.97	49.74	20.00	38.42	24.75	3.49	3.74	3.86	4.79	1.39	6.42	4.47	2.84	2.87	17.99	7.62	3.87	1.52	25.12	3.52	2.30	0.05
February .	30.54	28.95	29.88	51.00	20.00	39.59	24.33	3.10	2.10	2.57	3.00	0.84	7.68	6.16	2.74	3.07	13.94	8.31	4.35	1.58	22.00	2.72	2.77	0.77
March . . .	30.52	29.09	29.83	54.37	28.25	41.56	24.50	3.69	3.47	2.94	2.63	1.42	7.58	5.47	3.80	3.46	17.00	7.37	5.05	1.58	25.22	2.44	2.72	0.61
April	30.43	29.14	29.88	60.42	29.75	45.80	29.16	3.10	3.94	3.94	2.84	1.31	6.47	4.70	3.70	1.97	19.58	7.26	2.79	0.37	25.76	2.65	1.41	0.23
May	30.80	29.51	30.01	69.37	35.00	52.64	33.25	4.00	4.00	5.05	3.58	.90	5.72	4.05	3.70	1.78	22.90	5.10	3.00	—	28.10	2.00	0.85	0.05
June	30.44	29.33	29.97	74.68	41.41	57.06	29.33	4.33	3.56	2.44	3.00	1.00	5.90	4.54	5.23	2.03	20.10	7.15	3.37	—	26.55	2.34	0.83	0.28
July	30.40	29.40	29.92	80.00	45.25	59.22	27.75	4.00	4.00	2.44	2.28	1.00	7.77	4.67	4.84	3.00	19.22	6.52	5.26	—	28.00	2.00	1.00	—
August . . .	30.42	29.35	29.92	80.00	41.00	57.78	30.50	5.05	3.95	2.73	2.27	.78	6.62	4.44	5.16	3.42	19.11	6.42	5.47	—	28.50	1.78	0.61	0.11
September .	30.39	29.26	29.82	69.84	36.83	53.52	27.92	3.21	4.21	2.05	2.59	1.57	8.21	5.10	3.05	3.77	16.05	7.53	6.42	—	25.29	2.24	2.29	0.18
October . .	30.79	29.09	29.88	60.05	31.58	49.18	27.50	4.37	4.16	2.00	2.31	1.00	8.10	5.96	3.10	4.32	15.47	8.06	7.42	.05	23.08	3.84	2.77	1.34
November .	30.63	28.97	29.75	54.00	27.66	43.09	25.50	4.15	4.26	2.69	3.22	1.52	5.74	4.84	3.58	4.50	13.22	8.47	8.00	0.31	23.11	2.72	3.84	0.33
December .	30.80	28.42	29.76	51.42	26.33	40.85	24.83	3.31	4.10	2.68	2.38	1.85	7.52	6.16	3.00	4.43	13.47	9.47	7.63	0.42	23.14	3.13	4.13	0.60
	30.80	28.29	29.88	80.00	20.00	48.25	60.00	45.75	45.50	35.25	35.00	14.50	83.75	60.50	44.75	38.50	208	89.00	62.50	5.50	303½	31.50	25.50	4.50

NOTES TO TABLES OF CLIMATE.

1. PENZANCE. (A.) E. C. Giddy, Esq. Average of twelve years, from 1821 to 1832 inclusive. From Dr. Forbes's Medical Topography of the Land's End, in vol. ii. of the Transactions of the Provincial Medical and Surgical Association.
(B.) Annual range, average extremes, 1821—1827. Monthly range, average extremes for twelve years, 1821—1832. Extreme range during twenty-one years, 84°—19°=65°.
(C.) Mean difference of 7 A. M., and 2 P. M.
(D.) Forbes; *Climate of Penzance.*

2. SIDMOUTH. Dr. Clarke; 1812—1814; mean of 9 A. M., and 2 P. M. *Edinburgh Medical Journal.* These observations do not give the true mean temperature, as they were not made with a register thermometer, or taken at those hours from which a close approximation to the real mean is obtained.

3. TORQUAY. Dr. Barry; January and February, 1838—Dr. Foote, from December 1829, to July 1830, inclusive, and from December 1830, to May 1831, inclusive. The winters of 1838 and of 1829–30 were severe; that of 1830–31 mild.

4. UNDERCLIFF. (A.) Col. Hewitt, Drs. Crawford, Grant, and Martin, during various years from 1829 to 1840, including the severe winter of 1829–30, and the unusually severe month of December, 1840, as also the mild winter of 1833–34.
(B.) Dr. Martin, from two years' observations.
(C.) The number of days (144) is the mean for 1839 and 1840, both of which years were unusually wet, especially 1839, when an almost unprecedented number of days proved rainy in the Undercliff, the number amounting to 177; while in 1840, also a very wet season, 111 days were rainy. It should be also remarked that under the denomination of rainy days is included those days on which ANY RAIN *fell during either day or night.*

5. HASTINGS. Dr. Harwood; from September, 1832, to March, 1834, including the mild winter of 1833–4. R. Ranking, Esq.; from June 1837, to the end of 1840, including the severe winter of 1837-38.

6. CHICHESTER. Dr. Sandon; 1794—1796. Mean of 8 A. M., and 8 P. M.; Cross of Chichester, 32 feet above the level of the sea.

7. GOSPORT. Dr. Burney; corrected for each month by Brewster's table, *ut infra.*

8. LONDON. (A.) Howard; from the observations made at the apartments of the Royal Society, Somerset House, 1797—1816; 1787—1816, 50°456. *Climate of London.* Mean of maxima and minima, 1820—1822, 49°30. Daniell, *Essay on the Climate of London.* Range of mean annual temperature during thirty years, 4°8. Howard.
(B.) Deduced from the average extremes; 1820—1823. Daniell. Maximum temperature, during thirty years, 96°; 13th July, 1808. Minimum during the same period—5°; 9th February, 1816. Howard.

(c.) Average difference of the higher and lower mean, 1797—1806. Howard. Mean daily range according to Daniell, 13°6; mean maximum, 56°1; mean minimum, 42°5.

(d.) Mean difference of the temperature of the same hours of successive days; calculated from Daniell's Meteorological Journal, 1820—1823.

8a. Environs of London, viz., Plaistow, Stratford, and Tottenham. Howard, *ut supra.*

(a.) Average extremes, 1807—1816.

(b.) Average difference of the higher and lower mean, 1807 to 1816.

9. Chiswick. Horticultural Gardens, average of ten years, 1826—1835 inclusive.

10. Bushy Heath. Colonel Beaufoy; 1824, 1825. Mean of extremes. *Annals of Philosophy.*

11. Oxford. Dr. Robertson, Radcliffe Observatory; 1816—1821; mean of maxima and minima. *Edinburgh Phil. Journal.*

12. Cheltenham. Moss; 1821, 1825, 1826; mean of extremes. Thomas's *Practical Observations, &c.*

13. Bristol. Bristol Institution; average of three years, 1834—1836, both inclusive. These tables, although made with the register thermometer, are not so perfect as could be desired, as they do not note more than twenty-seven days in any month, and in one or two months, so few as 14.

(b.) The calculations are only an approximation to the truth, as the quantities were never noted for more than twenty-six days in the month, and sometimes only twenty-three.

(c.) The number of days here given is only an approximation to the truth, as there were never more than twenty-seven days noted in any month, and sometimes so few as twenty-three. And the weather is frequently marked fine when the pluviometer indicates a fall of rain; this probably arises from the fall having taken place during the night.

14. Helston, Cornwall. Mr. Moyle; 1821—1828; 105 feet above the level of the sea.

15. Exeter. Dr. Barham. Average of eight years, 1829 to 1836 both inclusive.

16. New Malton, Yorkshire. Mr. Stockton; 1823, 1824; ninety-two feet above the level of the sea. *Annals of Philosophy.*

17. Alderley Rectory, near Knutsford, (Cheshire.) (a.) The Rev. E. Stanley; 1815, 1824, mean of 8 a. m., 2 p. m., and 10 p. m., corrected for each month by Dr. Brewster's table, as deduced from the Leith Fort Observations.

(b.) Average of extremes of ten years. Extreme range in ten years, 84°—1°=83.

(c.) Mean difference of 8 a. m. and 2 p. m. *Edinburgh Philosophical Journal*, xxiv.

18. Kendal. Dalton.

19. Bute. (a.) Robt. Thom, Esq., of Ascog. Average of nineteen years, 1821 to 1839 inclusive; the observations taken hourly for twelve years during that period!

(b.) Deduced from the data in Table X. See the following note.

Note to Table X. The maxima and minima of the barometer and thermometer in the bottom line, are the highest and lowest points reached by the mercury during the whole of the 19 years. Column 7 gives the greatest difference of temperature during

the whole of the nineteen years, for each month, and for the whole nineteen years.

The mean of the barometer and thermometer, as given in the table, is not that between the maxima and minima, but have been deduced by dividing the sum of all the degrees, noted during the whole nineteen years, by the total number of observations made during that time.

20. Leith. (A.) Dr. Brewster; from the valuable observations made at Leith Fort, 1824, 1825.

(B.) "The measure of the daily change of temperature." Brewster. *Edinburgh Journal of Science.*

21. Edinburgh. (A.) A. Adie, Esq.; 10 A. M., 10 P. M., 1824–1825; at Canaan Cottage, one and a half miles south of Edinburgh Castle, three miles from the sea, and 260 feet above its level. *Edinburgh Journal of Science.* Mean of year, 47°8; Winter, 38°6; Spring, 46°4; Summer, 58°2; Autumn, 48°4;—warmest month, 59°4, coldest month, 38°3. Playfair.

22. Elgin. Observations taken at Elgin Institution, by common thermometer, during the years 1835, 1836, 1838. These observations being made at different times in the day during the various years, are of course comparatively of little value as determining the true mean temperature. 1835, 8½ A. M., 3½ P. M.; 1836, 9 A. M., 9 P. M.; 1838, 9 A. M., 3 P. M.

23. Kinfauns Castle. Lord Gray: 10 A. M., 10 P. M., 5140 feet above the level of the sea; 1825, 48°319; mean of maximum and minimum 49°048. *Edin. Phil. Journ.* xxiv., xxviii.

24. Cove of Cork. Dr. Scott. Average of three years. From 1834 to 1837. *Dublin Journal of Medical Science.* The mean monthly temperature of Cove for 1838 (of which the months of January and February were unusually severe,) contrasts advantageously with that of several other places in Britain for the same year.

25. Dublin. Kirwan.

26. County Antrim. 1814. *Edinburgh Medical Journal.*

27. Jersey. Dr. Hooper. Average of five years. From 1831 to 1835: generally moderate winters, and including the mild winter of 1833–34.

28. Isle of Man. Average of five years from 1824 to 1828, both inclusive. These observations only approximate to the true mean, having been taken by common thermometer, at 9 A. M. and 11 P. M.

29. Geneva. (A.) Pictet. Mean of sunrise and 2 P. M.; 1080 feet above the level of the sea. Saussure, 50°74; Berne, 49°30: difference of warmest and coldest month, 36°12; Zurich, 47°8: difference of warmest and coldest month, 31°10.

(B.) Difference of the mean of sunrise and of 2 P. M. Annual range at Sion, 92°—9°=83° 1819, 92°+2°=94°.

30. Paris. (A.) Royal Observatory; mean of extremes; M. Boward, 1806—1826.

31. Nantes. Huette, Observatory; 46 metres above the level of the sea. and 25 from the ground; 1824, 1825, 55°94. Duplessis and Bondin.

32. Bourdeaux. Humboldt, from Guyot.

33. Pau. (A.) Mr. Christison; at Chateau Billère, from September, 1822, to July, 1824; and at Pau, Hotel de Place, from July, 1824, to May, 1825.

(B.) Mean difference of 9 A. M., and noon. Range at Toulouse, 81°—24°=57°.

(C.) Mean difference at 9 A. M., 12 A. M., and 4 P. M.

34. MONTPELIER. Poitevin; 1796—1806. *Sur le Climat de Montpelier.* 58° mean of twelve years; Mejan. Nismes, 60°26.

35. AVIGNON. (A.) M. Guerin; Musée Calvet; about seventy feet above the level of the sea; sunrise and 2 P. M.

(B.) Mean difference of sunrise and 2 P. M. Extreme range in twelve years, 101°—12°=89°.

36. MARSEILLES. (A.) Thulis and Blanpain, Royal Observatory; about 160 feet above the level of the sea; 1806—1815. *Statistique des Bouches du Rhone.* 60°10. St. Jaque de Sylvabelle. Aix 56°66; 309 feet above the level of the sea.

Range at Marseilles, 93°—20°=73°; at Aix 102°—19°=83°.

37. TOULON. M. Burel, Naval Hospital; 1749—1781. *Statistique des Bouches du Rhone.*

38. NICE. (A.) M. Risso; 1806—1825; mean of 8 A. M. and of 8 P. M., corrected by Brewster's Table. *Histoire Naturelle de l'Europe Meridionale.* Dr. Skirving, November, 1820, to February, 1826; mean of sunrise and 2 P. M. Both these series of observations nearly coincide.

(B.) Dr. Skirving; mean difference of sunrise and 2 P. M.

(C.) Idem: the mean difference of successive days at sunrise and at 2 P. M.

39. GENOA. I. Fratelli Mojon. Humboldt, 60°26.

40. LEGHORN. (A.) Dr. Peebles and others.

(B.) Mean difference, of 8 A. M. and 2 P. M.

41. NAPLES. (A.) Broschi, Observatory at Capo di Monte; 148 metres above the level of the sea; mean of sunrise and 2 P. M.; 1821—1824. Toaldo, 63°5. Palermo, 63°60. Scina, *Topografia di Palermo.*

(B.) Mean difference of sunrise and 2 P. M. Extreme range during five years 95°—26°=69.

(C.) Mean difference of successive days at sunrise and 2 P.M.

42. MALTA. Army Medico-Statistical Reports.

43. MEDITERRANEAN, General Temperature of. Mr. Wm. Black; *Edinburgh Philosophical Journal, September,* 1821. Mean of three years, affording a view of what temperature a person might be exposed to, sailing indiscriminately in different parts of the Mediterranean.

44. CORFU. Dr. John Davy. Mean of the thermometer for the years 1821—27.

45. BATHS OF LUCCA. Dr. Todd.

46. CAMAJORE. State of Lucca, at the foot of the Apennines, 105 feet above the level of the sea.

(A.) Il Canonico Butori; 1777—1816. Lucca, 60°44; forty feet above the level of the sea.

Range 88°50—24°00=64°50; extreme range in forty years 99°—18°=81°.

47. SIENNA. At Belvidera; 1786—1791; furnished by Profes. Grotanelli.

48. FLORENCE. Ximenian Observatory, Scuole Pie; 205 feet above the level of the sea; mean of three daily observations; 1824—1825. Temperature within doors 61°50, out of doors 58°75. Humboldt 61°52. Bologna 56°30. Verona 55°76. Venice 56°48. Padua 56°30.

49. PISA. Deduced from several Journals. 60°0. Piazzini.

50. ROME. (A.) Observatory of the Roman College, 163 feet above the level of the Mediterranean, and 101 feet from the level of the ground; 1811—1823. The mean of the evening observation at 9 P. M. has been preferred to the mean of 7

A. M. and 2 P. M. *Effemeride Astronomiche* 60°08. Calandrelli. 63°44. W. Humboldt.

(*) It freezes on an average about ten times in every year, and snow falls about twice a year.

(B.) Mean difference of 7 A. M. and 2 P. M. Extreme range during thirteen years 101°—22°=89°.

(C.) Mean difference of successive days at 7 A. M., 2 P. M., and at 9 P. M.

51. CADIZ. Dr. Skirving; September 1810 to August 1812, on board ship in Cadiz Bay, at noon and 6 P. M., corrected by Brewster's table; Madrid 59°0; 2040 feet above the level of the sea. Lisbon 62°. Balbi. *Essai Statistique sur le Portugal.*

52. ST. MICHAEL'S. Thomas Blunt, Esq., 1825—Mean of 8 A. M. and 8 P. M.*

53. MADEIRA. (A.) Dr. Heineken, *Funchal:* 1826. Mean deduced from mean maxima and mean minima, Gourlay; mean of extremes; 1793—1802; mean annual temperature, 66°21. Winter, 62°53; Spring, 63°00; Summer, 70°50; Autumn, 69°20; January, 61°40; February, 62°20; March, 61°30; April, 62°10; May, 65°60; June, 67°40; July, 71°10; August, 72°90; September, 72°80; October, 69°20; November, 65°60; December, 63°00. Heberden 67°30; mean annual temperature, as corrected by M. Schouw.

(B.) †Gourlay, average of eighteen years. (?) Heineken, 1826.

(C.) Mean difference of maxima and minima.

(D.) Mean difference of successive days at 10 A. M. and 10 P. M.

54. SANTA CRUZ, Isle of Teneriffe, Von Buch, from the Journal of Don Francisco Escolar; mean of sunrise and of noon.

55. CAIRO. Humboldt, from Nouet.

* See also Dr. Bullar's Observations, p. 144 of this work.

CONTENTS.

PART THE SECOND.

ON CLIMATES.

APPENDIX I.

APPENDIX II.

MINERAL WATERS.

APPENDIX III.

TABLES OF CLIMATE, &c.

April, 1843.

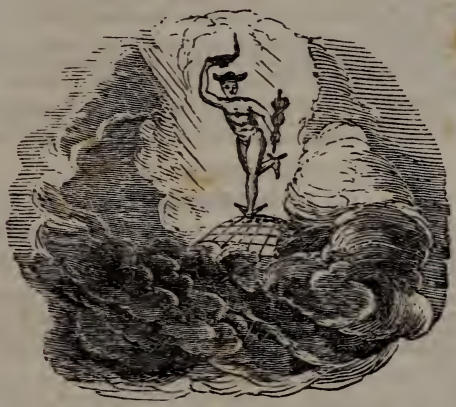
Standard Works

ON

ANATOMY, MEDICINE, SURGERY,

AND

THE COLLATERAL SCIENCES.



PUBLISHED BY

ED. BARRINGTON & GEO. D. HASWELL,

PHILADELPHIA.

NEW WORKS.

PILCHER ON THE EAR.

A TREATISE on the STRUCTURE, ECONOMY, and DISEASES of the EAR; being the Essay for which the Fothergillian Gold Medal was awarded by the Medical Society of London. By GEO. PILCHER, late Lecturer on Anatomy, and Lecturer on Surgery at the Theatre of Anatomy and Medicine, Webb St., Borough, and Senior Surgeon to the Surrey Dispensatory. First American, from the 2d London edition, with Notes and numerous illustrative *Plates*.

PUERPERAL FEVER.

THE HISTORY, PATHOLOGY, AND TREATMENT OF PUERPERAL FEVER AND CRURAL PHLEBITIS. By Drs. Gordon, Hey, Armstrong, and Lee; with an INTRODUCTORY ESSAY by Charles D. Meigs, M.D., Professor of Obstetrics and the Diseases of Women and Children in the Jefferson Medical College, Philadelphia. 1 vol. 8vo.

"We have peculiar satisfaction, in announcing the publication of this very judiciously arranged series of treatises, on one of the most important and interesting diseases, which demand the attention of the physician." "Dr. Meigs' Introductory Essay is concise and judicious, and will be read with profit. He speaks in the highest terms of commendation of Dr. Gordon's invaluable treatise — a treatise which cannot be too generally diffused and studied. Altogether this volume presents the most acceptable and useful compend of the doctrines and practice of the best authorities, with regard to 'Puerperal Fever,' with which we have ever met."—*N. Y. Lancet.*

"We are pleased to see the republication of these valuable monographs upon Puerperal Fever. As they are all of them Essays founded upon an extensive observation, and contain a very large number of recorded cases, they must always be valuable."—*New England Jour. Med. Scien.*

"Taken in connexion, the treatises it comprises present an invaluable mass of facts in relation to Child-bed Fever, without an acquaintance with which no one can, with propriety, be considered fully qualified to undertake its management."—*Jour. Med. Scien.*

DIGESTION.

DERANGEMENTS, PRIMARY and REFLEX, of the ORGANS of DIGESTION. By Robert Dick, M.D., author of "A Treatise on Diet and Regimen." 1 vol. 8vo.

"It is the fullest, most comprehensive, and decidedly the best account of derangements of the digestive organs that we have encountered. While it embraces all that is important or interesting to be found in the writings of other authors, it contains much original information, which the physician will find of great practical usefulness.' —*Western and Southern Medical Recorder.*

"We recommend this volume most warmly to the attention of our readers. —*London Lancet*, No. 937.

"This volume may, in fact, be denominated with no small degree of propriety, an encyclopedia of dyspeptic disorders, and we unhesitatingly commend it, as the most useful and comprehensive treatise on this class of diseases with which we are acquainted."—*N. Y. Lancet.*

"We have perused this work with pleasure and instruction. It is decidedly the best compilation in the English language on the extensive class of disorders and diseases comprehended under the term dyspepsia, united with a very large proportion of original matter, both in the form of able comments on other writers, and practical information derived from the author's own experience.—*Johnson's Medico-Chirurg.* for Jan. 1842.

SEMEIOLOGY.

OUTLINES OF PATHOLOGICAL SEMEIOLOGY. Translated from the German of Professor Schill. With copious notes by D. Spillman, M.D., A.M., &c., &c. 1 vol. 8vo.

"The signs of disease exhibited by the principal tissues and organs, are treated of in a succinct and comprehensive manner, by Dr. Schill, and as a work of daily reference to assist in distinguishing diseases it cannot be too highly commended.—*Balt. Jour.*

"An elegant and accurate translation of a very ingenious and instructive work. We do not know any other source from which we can so easily and profitably obtain all that is really useful in the semeiology of the ancients; and the erudite translator and editor has so very creditably supplied the deficiencies of the author's *abrige* of the labors of modern workers, in this most important department of modern science, that we can in good conscience commend the book as one of unequivocal merit.—*New York Lancet.*

MEDICAL EXPERIENCE.

CURIOSITIES OF MEDICAL EXPERIENCE. By J. G. Millingen, Surgeon to the Forces, Member of the Medical Society of the Ancient Faculty of Paris, etc., etc.

"*Curiosities of Medical Experience.* By J. G. Millingen, Surgeon to the Forces, etc. The Author or Compiler derived the idea which prompted him to write this work from D'Israeli's 'Curiosities of Literature;' and, in our view, he has made a book equally curious in its way with that one. The heads of his chapters are numerous and varied, and all his subjects are treated in an agreeable and comprehensible style to the general reader. The drift of the Author, too, is decidedly useful. We shall endeavour to give some extracts from this work."—*Nat. Gaz.*

MATERIA MEDICA.

A PRACTICAL DICTIONARY OF MATERIA MEDICA, *including the Composition, Preparation and Uses of Medicines; and a large number of Extemporaneous Formulæ: together with important Toxicological Observations; on the Basis of Brande's Dictionary of Materia Medica and Practical Pharmacy;* by JOHN BELL, M.D., Lecturer on Materia Medica and Therapeutics, &c. &c. 1 vol. 8vo.

"Mr. Brande's is an excellent work, and with the retrenchments, additions, and alterations of Dr. Bell, may be regarded as one of the most valuable works on the Materia Medica we now possess. It has an important advantage over many of the treatises on this subject, in giving a large number of prescriptions for the administration of the principal articles. This renders it especially valuable to the young practitioner." —*Balt. Jour.*

A THERAPEUTIC ARRANGEMENT and SYLLABUS of MATERIA MEDICA. By JAMES JOHNSTONE, M.D., Fellow of the College of Physicians, and Physician to the General Hospital, Birmingham.

"This book cannot but be particularly useful to those who intend to lecture or write upon the Materia Medica; as well as to the students for whose particular use it is prepared."—*Brit. and For. Med. Rev.*

LIVER AND SPLEEN.

DISEASES OF THE LIVER AND BILIARY PASSAGES; by WILLIAM THOMSON, one of the Physicians of the Royal Infirmary of Edinburgh; and CLINICAL ILLUSTRATIONS OF THE LIVER AND SPLEEN, by WILLIAM TWINING; Surgeon of General Hospital of Calcutta, &c., &c. 1 vol. 8vo.

"The present work we regard as remarkably well calculated to remove several of the objections and difficulties now referred to. It is distinguished throughout by a much greater degree of precision in the pathological history of the different morbid states of the liver than any work hitherto published on that subject. It contains not only the most ample and complete accounts of the various dynamic disorders and organic changes incident to the organ hitherto given, but these states are described and distinguished in a much clearer and more methodical manner than any other treatise yet before the public. In accordance with this we observed, also, in the therapeutic principles and precepts established by the author, a much more rational development and application of therapeutic measures than it has yet been our fortune to witness."—*Edinburgh Med. and Sur. Journal*, October, 1841.

"The work before us is an excellent compilation of the subject of hepatic affections, functional and structural; and, as such, it is infinitely more valuable to practitioners and students, than any original essay, however ably executed. We cannot do better, therefore, than strongly recommend the work as the best in the English language, on the important subjects of which it treats.—*Medico-Chirurg. Rev., October*, 1841.

"These two works, when united, form, we may safely say, one of the most valuable and attractive volumes on this important class of diseases which have been issued from the press. We may, *en passant*, remark, that the volume is got up in a very superior style."—*N. Y. Lancet*, March 26, 1842.

CLINICAL REMARKS ON SOME CASES OF LIVER ABSCESS PRESENTING EXTERNALLY. By JOHN G. MALCOLMSON, M.D. Surgeon Hon. E. I. C. Service, Fellow of the Royal Asiatic Society, and the Geological Society, London, 1 vol. 8vo.

VENEREAL.

HUNTER'S TREATISE ON THE VENEREAL DISEASE. With Notes by Dr. BABINGTON. With Plates. 1 vol. 8vo.

"Under the hands of Mr. Babington, who has performed his task as editor in a very exemplary manner, the work has assumed quite a new value, and may now be as advantageously placed in the library of the student as in that of the experienced surgeon."—*Brit. & For. Med. Rev.*

"The notes, in illustration of the text, contain a summary of our present knowledge on the subject; the manner in which these notes are constructed is at once clever and perspicuous; and the modes of treatment prescribed, spring from a right apprehension of the disease. We would recommend to the reader the note on the primary venereal sore; the note itself is an essay in every word of which we fully concur."—*Med. Gaz.*

A PRACTICAL TREATISE ON VENEREAL DISORDERS, AND MORE ESPECIALLY ON THE HISTORY AND TREATMENT OF CHANCRE. By PHILIPPE RICORD, M.D., Surgeon to the Venereal Hospital at Paris. 1 vol. 8vo.

GRAVES & GERHARD.

CLINICAL LECTURES; by Robert J. Graves, M.D., M.R.S.A., Professor of the Institutes of Medicine in the School of Physic, Trinity College, Dublin, with additional Lectures and Notes, by W. W. Gerhard, M.D., Lect. on Clin. Med. to the Univ. of Penn., Physician to the Philadelphia Hospital, Blockley, etc. 1 vol. 8vo.

"In the volume before us, a series of clinical lectures by Dr. Gerhard is given, and forms a most appropriate and acceptable addition to those of Dr. Graves. Between these two distinguished physicians we can trace many points of resemblance. We find in both the same professional zeal,—the same powers of close and correct observation,—the same discriminating tact,—the same disregard of idle theory,—and the same decision in the application of right principles. No student or practitioner should be without this volume. *It is in itself a library of practical medicine.*"—*N. Y. Lancet.*

DISEASES OF CHILDREN.

A TREATISE ON THE DISEASES OF CHILDREN; WITH DIRECTIONS FOR THE MANAGEMENT OF INFANTS; by the late Michael Underwood, M.D. From the ninth English edition, with Notes, by S. Merriman, M.D., and Marshall Hall, M.D., F.R.S., etc.; with Notes, by John Bell, M.D.. etc., of Philadelphia. 1 vol. 8vo.

ÆTIOLOGY.

ARETÆUS ON THE CAUSES AND SIGNS OF ACUTE and CHRONIC DISEASE. From the Greek, by T. F. Reynolds, M.B., F.L.S., &c., &c. 1 vol. 8vo.

"The correct detail of symptoms, the nervous style, the graphic delineation of disease, displayed in this author's work, the poetic and quaint fancies scattered throughout, give a certain value and interest, that may fairly excuse an attempt to reinvest part of them in a vernacular garb."

"We certainly have no hesitation in recommending this curious volume to the notice of our readers. Its price is a mere trifle."—*New York Lancet.*

EYES.

A MANUAL OF THE DISEASES OF THE EYE. By S. Littell, Jr., M.D., one of the Surgeons of the Wills' Hospital for the Blind and Lame, &c., &c.

"We confidently recommend the work of Dr. Littell to the senior, as well as to the junior, members of the profession. It is replete with information; yet so terse in style, and compressed in bulk, as at once to entice and repay perusal. It is no small triumph to the author to be able to say that he has introduced almost all that is valuable, and everything absolutely necessary to the student within the compass of 200 pages, and we would deliberately recommend our young friends to read this work."—*Br. & For. Med. Rev.*

GUMS.

THE GUMS; with late Discoveries on their Structure, Growth, Connections, Diseases, and Sympathies. By George Waite, Member of the London Royal College of Physicians. 1 vol. 8vo.

TEETH.

A TREATISE ON THE TEETH. By John Hunter. With Notes by Thomas Bell, F.R.S. With Plates. 1 vol. 8vo.

"The treatise on the teeth is edited by Mr. Bell, a gentleman accomplished in his art. Mr. Bell has studied his subject with the greatest minuteness and care; and in appropriate notes at the foot of the page corrects the author with the air of a gentleman, and the accuracy of a man of science. The matter contained in these short notes forms an ample scholum to the text; and without aiming at the slightest display of learning, they at the same time exhibit a ready knowledge on every point, and an extensive information both of comparative anatomy and pathology.—*Med. Gazette.*

CHEST.

LECTURES on the PHYSIOLOGY and DISEASES of the CHEST, including the Principles of Physical and General Diagnosis, illustrated chiefly by a rational Exposition of their Physical Signs; with new researches on the sounds of the heart. By CHARLES J. B. WILLIAMS, M.D.; Third edition, 1 vol. 8vo.

"Evidently written by a man thoroughly acquainted with his subject."—*Lancet.*
"We strongly recommend this work to the attention of auscultators."—*Med. Chir. Rev.*
"I gladly avail myself of this opportunity of strongly recommending this very valuable work."—*Dr. Forbes's Translation of Laennec.*
"Of all the works on this subject, we are inclined much to prefer that of Dr. Williams."—*Med. Gaz.*

LECTURES ON THE DIAGNOSIS, PATHOLOGY, AND TREATMENT OF THE DISEASES OF THE CHEST. By W. W. GERHARD, M.D., Lecturer on Clinical Medicine in the University of Pennsylvania, etc., etc. 1 vol. 8vo.

"A series of clinical lectures—concise, lucid, and eminently instructive. We have no more able expositor of diseases of the chest than Dr. Gerhard, and any work of his on these important subjects is certain of grateful acceptance by his professional brethren."—*New York Lancet.*
"To our readers, therefore, we recommend the book of Dr. Gerhard as the fullest and most judicious manual, in relation to the diseases of the chest, which they can procure."—*Western and Southern Recorder*, June, 1842.
"These lectures constitute a useful and practical digest of the existing knowledge of the diseases of the chest (lungs and heart)."—*Bulletin of Medical Science.*

A PRACTICAL TREATISE on the PRINCIPAL DISEASES of the LUNGS. CONSIDERED ESPECIALLY IN RELATION TO THE PARTICULAR TISSUES AFFECTED, ILLUSTRATING THE DIFFERENT KINDS OF COUGH. By G. Hume Weatherhead, M.D., Member of the Royal College of Physicians, Lecturer on the Principles and Practice of Medicine, and on Materia Medica and Therapeutics, &c. &c. 1 vol. 8vo.

PRACTICAL OBSERVATIONS on DISEASES of the HEART, LUNGS, STOMACH, LIVER, &c., OCCASIONED by SPINAL IRRITATION: AND ON THE NERVOUS SYSTEM IN GENERAL, AS A SOURCE OF ORGANIC DISEASE. Illustrated by Cases. By John Marshall, M.D. 1 vol. 8vo.

CUTANEOUS DISEASES.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN, arranged with a view to their Constitutional Causes and Local Character, &c. By SAMUEL PLUMBE, late Senior Surgeon to the Royal Metropolitan Infirmary for Children, &c. Illustrated with Splendid Coloured Copperplate and Lithographic Engravings. 1 vol. 8vo.

PLUMBE *on Diseases of the Skin.*—"This excellent Treatise upon an order of diseases, the pathology of which is, in general, as obscure as the treatment is empirical, has just been republished, edited by Dr. John Bell, of this city. We hail with pleasure the appearance of any new work calculated to elucidate the intricate and ill-understood subject of skin-diseases. The late Dr. Mackintosh, in his Practice of Physic, recommends it as the 'best pathological and practical treatise on this class of diseases, which is to be found in any language.'"—*Phil. Med. Exam., Jan.* 17, 1838.
"This work is one of the most excellent on the Diseases of the Skin in the English language."—*West. Jour. of Med. and Phys. Sciences, Jan.* 1838.

BANDAGES AND BANDAGING.

THE SURGEON'S PRACTICAL GUIDE IN DRESSING, and in the Methodic APPLICATION of BANDAGES. Illustrated by ONE HUNDRED ENGRAVINGS. By THOMAS CUTLER, M.D., late Staff Surgeon in the Belgian Army. 2d American from the 3d London edition.

"The Author seems to have spared no pains in procuring correct descriptions of all the surgical apparatus, at present employed in bandaging and dressing, both at home and abroad. He has given numerous illustrations, in the form of well executed woodcuts, and has altogether produced what we conceive to be a very useful, and by no means an expensive publication."—*Medical Gazette.*

TETANUS.

A TREATISE ON TETANUS, being the ESSAY for which the JACKSONIAN PRIZE was awarded by the Royal College of Surgeons in London. By THOMAS BLIZARD CURLING, Assistant Surgeon to the London Hospital, &c.

"This book should be in the library of every surgeon and physician. It is a valuable work of reference. It does not pretend to originality, for originality on such a subject was not wanted. But a compendium of facts *was* wanted, and such a compendium is this volume. We cannot part from Mr. Curling without thanking him for the information we have received in reading his work, and for the matter it has enabled us to offer to our readers."—*Medico-Chir. Rev.*

BLOOD, INFLAMMATION, ETC.

TREATISE ON THE BLOOD, INFLAMMATION, AND GUN-SHOT WOUNDS. By JOHN HUNTER, F.R.S. With Notes, by JAMES F. PALMER, Senior Surgeon to the St. George's and St. James's Dispensary, &c., &c. 1 vol. 8vo.

LECTURES ON BLOOD-LETTING. By HENRY CLUTTERBUCK, M.D. 1 vol. 8vo.

HISTORICAL NOTICES ON THE OCCURRENCE OF INFLAMMATORY AFFECTIONS OF THE INTERNAL ORGANS AFTER EXTERNAL INJURIES AND SURGICAL OPERATIONS. By WILLIAM THOMPSON, M.D., &c. &c. 1 vol. 8vo.

A TREATISE ON INFLAMMATION. By JAMES MACARTNEY, F.R.S., F.L.S., &c., &c. Member of the Royal College of Surgeons, London, &c., &c. 1 vol. 8vo.

LECTURES ON THE BLOOD, AND ON THE CHANGES WHICH IT UNDERGOES DURING DISEASE. By F. MAGENDIE, M.D. 1 vol. 8vo.

ANIMAL ŒCONOMY.

OBSERVATIONS ON CERTAIN PARTS OF THE ANIMAL ŒCONOMY, Inclusive of several papers from the Philosophical Transactions, &c. By JOHN HUNTER, F.R.S., &c., &c. With Notes by RICHARD OWEN, F.R.S. 1 vol. 8vo.

MIDWIFERY.

LECTURES ON THE PRINCIPLES AND PRACTICE OF MIDWIFERY. By JAMES BLUNDELL, M.D. Edited by CHARLES SEVERN, M.D. 1 vol. 8vo. Just published.

"The eminently fluent and agreeable style — the large and accurate information — the great experience — and original mind of Dr. Blundell have secured for him a very enviable reputation as a public lecturer. It is impossible to read these lectures without being delighted — it is equally impossible to avoid being instructed. Were these discourses more generally diffused and studied here — were their sound and judicious directions recollected and their salutary cautions observed, we would hear of fewer cases of malpractice. This work forms a complete system of midwifery, with the diseases of the puerperal state and of the infant."—*N. Y. Lancet.*

A PRACTICAL TREATISE on MIDWIFERY; Containing the Results of Sixteen Thousand Six Hundred and Fifty-four Births, occurring in the Dublin Lying-in Hospital. By ROBERT COLLINS, M.D., Late Master of the Institution. 1 vol. 8vo.

"The author of this work has employed the numerical method of M. Louis; and by accurate tables of classification, enables his readers to perceive, at a glance, the consequences of the diversified conditions, in which he saw his patients. A vast amount of information is thus obtained, which is invaluable to those who duly appreciate precision in the examination of cases."—*Balt. Chron.*

A PRACTICAL COMPENDIUM OF MIDWIFERY; being the Course of Lectures on Midwifery and on the Diseases of Women and Infants delivered at the St. Bartholomew's Hospital by the late ROBERT GOOCH, M.D. Prepared for Publication by GEORGE SKINNER, Member of the R. Coll. of Surg., Lond. 1 vol. 8vo.

ARMSTRONG'S LECTURES.

LECTURES on the MORBID ANATOMY, NATURE, and TREATMENT of ACUTE and CHRONIC DISEASES. By the late JOHN ARMSTRONG, M.D.; Author of "Practical Illustrations of Typhous and Scarlet Fever," &c. Edited by JOSEPH RIX, Member of the Royal College of Surgeons. 1 vol. 8vo.

The *British and Foreign Medical Review* says of this work:

"We admire, in almost every page, the precise and cautious practical directions; the striking allusions to instructive cases; the urgent recommendations of the pupil to be careful, to be diligent in observation, to avoid hurry and heedlessness, to be attentive to the poor. Nothing can be more excellent than the rules laid down for all the parts of the delicate management of fever patients: nothing more judicious than the general instructions arising out of the lecturer's perfect knowledge of mankind. . . . . His prudent admonitions respecting the employment of some of the heroic remedies, as mercury, arsenic, and colchicum, attest his powers of observation and his practical merits." "The pious office of preserving and publishing his Lectures has been performed by Mr. Rix, with singular ability."

INSANITY.

A TREATISE on INSANITY and other DISEASES AFFECTING the MIND. By James Cowles Prichard, F.R.S. M.D. Corresponding Member of the Institute of France, &c. 1 vol. 8vo.

"The author is entitled to great respect for his opinions, not only because he is well known as a man of extensive erudition, but also on account of his practical acquaintance with the subject on which he writes. The work, we may safely say, is the best, as well as the latest, on mental derangement, in the English language."—*Medico-Chir. Rev.*

A TREATISE ON MENTAL DISEASES. By M. ESQUIROL.

APHORISMS on the TREATMENT and MANAGEMENT of the INSANE: with considerations on Public and Private Lunatic Asylums, pointing out the errors in the present system. By J. G. MILLINGEN, M.D., late Medical Superintendent of Lunatic Asylum, Hanwell, Middlesex, &c. 1 vol. 8vo.

"Dr. Millingen, in one small pocket volume, has compressed more real solid matter than could be gleaned out of any dozen of octavos on the same subject. We recommend his vade mecum as the best thing of the kind we ever perused."—*Dr. Johnson's Review.*

PHYSICAL AGENTS.

ON THE INFLUENCE of PHYSICAL AGENTS on LIFE. By W. F. EDWARDS, M.D., F.R.S., etc. Translated from the French, by Drs. Hodgkin and Fisher. To which are added, some Observations on ELECTRICITY, and Notes to the work. 1 vol. 8vo.

"This is a work of standard authority in Medicine; and, in a physiological point of view, is pre-eminently the most valuable publication of the present century; the experimental investigation instituted by the author, having done much towards solving many problems hitherto but partially understood. The work was originally presented in parts to the Royal Academy of Science of Paris, and so highly did they estimate the labours of the author, and so fully appreciate the services by him thus rendered to science and to humanity, that they awarded him, though a foreigner, the prize founded for the promotion of experimental physiology.

CLINICAL MEDICINE.

MEDICAL CLINIC; or, Reports of Medical CASES: By G. ANDRAL, Professor of the Faculty of Medicine of Paris, etc. Condensed and Translated, with Observations extracted from the Writings of the most distinguished Medical Authors: By D. SPILLAN, M.D., etc., etc.; containing *Diseases of the Encephalon, &c.* with Extracts from OLLIVIER'S Work on *Diseases of the Spinal Cord* and its Membranes. 1 vol. 8vo.

LECTURES on Subjects connected with CLINICAL MEDICINE. By P. M. Latham, M.D. Fellow of the Royal College of Physicians and Physician to St. Bartholomew's Hospital.

"We strongly recommend them [Latham's Lectures] to our readers; particularly to pupils attending the practice of our hospitals."—*Lond. Med. Gaz.*

SURGERY.

ELEMENTS OF SURGERY, IN THREE PARTS. By Robert Liston, Fellow of the Royal College of Surgeons in London and Edinburgh, Surgeon to the Royal Infirmary, Senior Surgeon to the Royal Dispensary for the City and County of Edinburgh, Professor of Surgery in the London University, &c. &c. Third American, from the Second London Edition, with upwards of one hundred and sixty illustrative engravings. Edited by

SAMUEL D. GROSS, M.D.,

Professor of Surgery, Louisville Medical Institute. Author of Elements of Pathological Anatomy, etc., etc. 1 vol. 8vo.

"We must not forget to mention that the volume is rendered still more attractive by the addition of numerous wood engravings (some of them introduced by Dr. Gross), all finely executed. These will be found of very considerable advantage to the student, materially assisting him in comprehending the explanation of morbid structure. Another admirable feature, is the printing of the notes in type of the same size as that of the text. This obviates almost entirely, whatever objections can be alleged against foot-notes."—*Western Jour. of Med. and Surg.*, Dec., 1842.

"We are here presented with a republication of Mr. Liston's admirable and much praised work on Surgery, which has been subject to the alembic of a critical and learned friend, Dr. Gross. He has added 'copious notes and additions,' such as the progress of surgery in the United States demands in order to meet the wants of the surgeon. Professor Gross has also given an entire article on Strabismus, and another on Club Feet, which were wholly omitted in the English copies. They may be regarded important, inasmuch as they give a completeness to an otherwise unfinished treatise. The execution of the book is good; the paper firm, and well secured in the binding. The plates are uniformly well executed, and the impressions distinct."—*Boston Med. and Surg. Jour.*

"In another essential feature this edition is greatly improved. With the principles is taught also with it the practice of surgery; and both morbid structure and operations are doubly described; first by the author and editor, and next by the graver of the artist."—*Bull. Med. Scien.*

"Mr. Liston's reputation as a clear, accurate, and scientific surgical writer, is so widely known and admitted, that formal panegyric is quite unnecessary. Dr. Gross has discharged his duties as editor, with all the sound sense, accurate discrimination, and experienced judgment, which all who knew him expected. The additions and notes are indeed profitable and interesting; and our only regret is, that they are not still more numerous than they are. The volume is inscribed to Professor Parker, of the College of Physicians and Surgeons in this city,—the beauty of its typography, and 'getting up,' will be readily taken for granted by all who know the publishers,—and the illustrative engravings are executed in a style very creditable to American art."—*N. Y. Lancet.*

"Mr. Liston has seen much, thinks accurately, and speaks independently. From a volume written by such a man, more really valuable practical instruction is to be derived than from all the books that were ever compiled."—*Western and Southern Med. Recorder.*

"This is a work of established reputation. It has gone through two editions in Great Britain, and the same number in this country. The additions of the American edition are copious, and add materially to the value of the work."—*Amer. Jour. Med. Sciences.*

"The author is bold and original in his conceptions, accurate in deductions, plain and concise in style; a combination of good qualities not often found united in a single volume. The notes and additions, by Prof. Gross, are well arranged and judicious, supplying some evident deficiencies in the original work."—*Western Lancet.*

LECTURES OF SIR ASTLEY COOPER on the PRINCIPLES and PRACTICE of SURGERY, with additional Notes and Cases. By FREDERICK TYRRELL, ESQ., Surgeon to St. Thomas's Hospital, and to the London Ophthalmic Infirmary. 1 vol. 8vo.

LECTURES ON THE PRINCIPLES OF SURGERY. By JOHN HUNTER, F.R.S. With Notes by JAMES F. PALMER, Senior Surgeon to the St. George's and St. James' Dispensaries, &c. &c. With Plates. 1 vol. 8vo.

"We cannot bring our notice of the present volume to a close without offering our testimony to the admirable manner in which the editor and annotator has fulfilled his part of the undertaking. The advancements and improvements that have been effected, up to our own day, not only in practical surgery, but in all the collateral departments, are constantly brought before the reader's attention in clear and concise terms."—*Brit. & For. Med. Rev.*

JOHN HUNTER'S WORKS.

THE COMPLETE WORKS OF JOHN HUNTER, F.R.S., 4 vols. 8vo., comprising his Lectures on the Principles of Surgery; A Treatise on the Teeth; Treatise on the Venereal Diseases; Treatise on Inflammation and Gun-Shot Wounds; Observations on Certain Parts of the Animal Œconomy; and a full and comprehensive Memoir. Each of the Works is edited by men of celebrity in the Medical Science, and the whole under the superintendence of

JAS. F. PALMER, of the St. George's and St. James's Dispensary. This is the only complete edition of the works of the distinguished physiologist ever published in this country.

"One distinctive feature of the present edition of Hunter's works has been already mentioned, viz: in the addition of illustrative notes, which are not thrown in at hazard, but are written by men who are already eminent for their skill and attainments on the particular subjects which they have thus illustrated. By this means, whilst we have the views entire of John Hunter in the text, we are enabled by reference to the accompanying notes, to see wherein the author is borne out by the positive knowledge of the present day, or to what extent his views require modification and correction. The names of the gentlemen who have in this manner assisted Mr. Palmer, are guarantees of the successful performance of their task."—*Med. Gaz.*

HYSTERIA.

AN ESSAY ON HYSTERIA, being an analysis of its irregular and aggravated forms; including Hysterical Hemorrhage and Hysterical Ischuria. With numerous Illustrative and Curious Cases. By THOMAS LAYCOCK, House Surgeon to the York County Hospital. 1 vol. 8vo.

UTERUS.

LECTURES on the FUNCTIONS and DISEASES of the WOMB, by CHARLES WALLER, M.D., Bartholomew's Hospital.

ON DISEASES of the UTERUS and its APPENDAGES, by M. LISFRANC, La Pitie Hospital.

ON DISEASES of the PUERPERAL STATE, by J. T. INGLEBY, Edinburgh. 1 vol. 8vo.

"We can very cordially recommend them as affording a concise and practical exposition of the pathology and treatment of a most important class of diseases, and which cannot be too attentively studied."—*N. Y. Lancet.*

"The present volume contains a short and succinct practical account of the principal morbid states either of the functions or the structure of the womb, the best methods of distinguishing them, and the means which experience has shown to be the most effectual in removing them. The reader will find that he obtains, in a small compass, a distinct view of the nature and treatment of each disorder."—*Edinb. Med. and Surg. Journ.*

CONSTIPATION.

A TREATISE on the CAUSES and CONSEQUENCES of HABITUAL CONSTIPATION. By JOHN BURNE, M.D., Fellow of the Royal College of Physicians, Physician to the Westminster Hospital, &c. 1 vol. 8vo.

"For some interesting cases illustrative of this work, the author is indebted to Dr. Williams, Dr. Stroud, Dr. Callaway, Mr. Morgan, Mr. Taunton, Dr. Roots, Sir Astley Cooper, Sir Benjamin Brodie, Mr. Tupper, Mr. Baller, Dr. Paris, Mr. Dendy, Dr. Hen. U. Thomson," &c.—*Preface.*

URINARY DISEASES.

URINARY DISEASES AND THEIR TREATMENT. By ROBERT WILLIS, M.D., Physician to the Royal Infirmary for Children, &c. &c.

"We do not know that a more competent author than Dr. Willis could have been found to undertake the task; possessing, as it is evident from his work that he does possess, an accurate acquaintance with the subject in all its details, considerable personal experience in the diseases of which he treats, capacity for lucid arrangement, and a style of communication commendable in every respect."

"Our notice of Dr. Willis's work must here terminate. It is one which we have read and trust again to read with profit. The history of discovery is successfully given; cases curious and important, illustrative of the various subjects, have been selected from many new sources, as well as detailed from the author's own experience, chemical analyses, not too elaborate, have been afforded, which will be most convenient to those who wish to investigate the qualities of the urine in disease; the importance of attending to this secretion in order to a proper understanding of disease is strongly insisted upon; in short, a book has been composed, which was much required, and which we can conscientiously and confidently recommend as likely to be useful to all classes of practitioners."—*Brit. & For. Med. Rev.*

AMUSSAT'S LECTURES on the RETENTION of URINE, CAUSED by STRICTURES of the URETHRA, and on the Diseases of the Prostate, translated from the French by James P. Jervey, M.D.

EPIDEMICS OF THE MIDDLE AGES.

EPIDEMICS OF THE MIDDLE AGES. From the German of I. F. C. Hecker, M.D., &c. &c. Translated by R. G. Babington, M.D. F.R.S.—

No. I.—THE BLACK DEATH IN THE 14th CENTURY.

"Hecker's account of the 'Black Death,' which ravaged so large a portion of the globe in the fourteenth century, may be mentioned as a work worthy of our notice, both as containing many interesting details of this tremendous pestilence, and as exhibiting a curious specimen of medical hypothesis."—*Cyclopedia of Practical Medicine—History of Medicine by Dr. Bostock.*

No. II.—THE DANCING MANIA.

"Medical History has long been in need of the chapter which this book supplies; and the deficiency could not have been remedied at a better season. On the whole, this volume ought to be popular; to the profession it must prove highly acceptable, as conveying so much information, touching an important subject which had almost been suffered to be buried in oblivion, and we think that to Dr. Babington especial thanks are due for having naturalised so interesting a production. The style of the translation, we may add, is free from foreign idioms; it reads like an English original.—*Lond. Med. Gaz.*

PHYSIOLOGY AND HYGIENE.

ESSAYS ON PHYSIOLOGY AND HYGIENE; viz:

I. Reid's Experimental Investigation into the Functions of the Eighth Pair of Nerves.

II. Ehrenberg's Microscopical Observations on the Brain and Nerves (with numerous engravings).

III. On the Combination of Motor and Sensitive Nervous Activity; by Professor STROMEYER, Hanover.

IV. Vegetable Physiology.

V. Experiments on the Brain, Spinal Marrow, and Nerves. By Prof. MAYER, of Bonn (with woodcuts).

VI. Public Hygiene.

VII. Progress of the Anatomy and Physiology of the Nervous System, during 1836. By Professor MULLER.

VIII. Vital Statistics. 1 vol. 8vo.

ANATOMICAL EXAMINATIONS.

EXAMINATIONS in ANATOMY and PHYSIOLOGY; being a complete series of Questions and Answers; designed and intended as preparatory to Examinations at the different Medical Schools throughout the United States. To which are annexed, Tables of the Bones, Muscles, and Arteries. By THOMAS SYDENHAM BRYANT, M.D., Surgeon U. S. Army.

"This is a very useful manual of anatomy. We have pleasure in recommending it to the favourable notice of students. They will find it of immense service in preparing for examinations."—*N. Y. Lancet.*

THE LONDON DISSECTOR, OR GUIDE TO ANATOMY; for the use of students: comprising a description of the muscles, vessels, nerves, lymphatics, and viscera of the human body, as they appear on dissection; with directions for their demonstration. Revised and corrected by EDWARD J. CHAISTY, M.D., &c., &c. 1 vol. 12mo.

"Although there are several of these dissecting-room companions, there is not one in the whole catalogue that wears better, from its intrinsic value, than the old London Dissector. With the improvements of this excellent edition, carefully revised, it will prove a very economical as well as certain assistant; and it therefore commends itself to the student."—*Boston Med. and Surg. Jour.*

JUST PUBLISHED,

STOKES AND BELL.

LECTURES ON THE THEORY AND PRACTICE OF PHYSIC. By WILLIAM STOKES, M.D., Lecturer at the Medical School, Park Street, Dublin: Physician to the Meath County Hospital, etc., etc., and JOHN BELL, M.D., Lecturer on Materia Medica and Therapeutics: Member of the College of Physicians, Philadelphia, and of the American Philosophical Society, etc., etc. Second American Edition. 2 vols. 8vo.

"The work has now assumed the form of a quite complete system of medicine, equally valuable as a text-book to the student, and a book of reference to the practitioner." "We know of no book of the kind which we would more readily place in the hands of a student, or to which we would more readily refer the practitioner, for a hasty investigation of a subject."—*New Eng. Quart. Journ. of Med. and Surg.*

"Stokes and Bell's Practice being among the best works extant on practical medicine, will at once commend itself to the practitioners of our country. It is not going too far to declare, that no physician, whether his experience be large or small, should be without this work in his library; and, having it there, he should study its various parts with care and attention."—*Western Lancet.*

"A second edition of this work of established reputation, is sent out from the press of Messrs. Barrington and Haswell, Philadelphia. No change in the mind of the medical public, touching the worth of this very celebrated series of medical lectures, has been wrought by the advent of later publications on the same subjects. It is just as popular as ever, and we believe, at this moment, is exerting a far more extensive influence than was ever predicted by the warmest personal friends of the two learned authors."—*Boston Med. and Surg. Jour.*

The following is from the pen of a distinguished Professor in one of the Medical Schools in the West.

"We cordially recommend the joint labours of two such distinguished physicians as Drs. Stokes and Bell to the notice of the medical profession. They will be found to embody the principles and practice of medical science down to the present moment."—*Louisville Journal.*

MISCELLANEOUS.

OUTLINES OF GENERAL PATHOLOGY. By GEORGE FRECKLETON, M.D., Fellow of the Royal College of Physicians.

OBSERVATIONS on the PRINCIPAL MEDICAL INSTITUTIONS and PRACTICE of FRANCE, ITALY, and GERMANY: with Notices of the Universities, and Cases from Hospital Practice: With an Appendix on ANIMAL MAGNETISM and HOMŒOPATHY. By EDWIN LEE, Member of the Royal College of Surgeons, &c. 1 vol. 8vo.

"Mr. Lee has judiciously selected some clinical cases, illustrating the practice pursued at the different hospitals, and he has wound up the volume with an amusing account of animal magnetism and homœopathy—those precious effusions of German idealty, for which we refer to the work itself.—*Medico-Chirurg. Rev.*

BOUILLAUD ON ACUTE ARTICULAR RHEUMATISM IN GENERAL. *Translated from the French*, by JAMES KITCHEN, M.D., Philada.

MEDICAL AND TOPOGRAPHICAL OBSERVATIONS UPON THE MEDITERRANEAN AND UPON PORTUGAL, SPAIN, AND OTHER COUNTRIES. By G. R. B. HORNER, M.D., Surgeon U. S. Navy, and Honorary Member of the Philadelphia Medical Society. With Engravings. 1 vol. 8vo.

"An uncommonly interesting book is presented to those who have any disposition to know the things medical in Portugal, Spain, and other countries," and "will doubtless be read, also, with marked satisfaction by all who have a taste for travels.—*Bost. Med. and Surg. Jour.*

AN ESSAY ON DEW, and several Appearances connected with it, by WILLIAM CHARLES WELLS, M.D., F.R.S., etc.

ON DENGUE; ITS HISTORY, PATHOLOGY, AND TREATMENT. By S. HENRY DICKSON, M.D., Professor of the Institutes and Practice of Medicine in the Medical College of S.C.

MISCELLANEOUS — *Continued.*

HINTS ON THE MEDICAL EXAMINATION OF RECRUITS FOR THE ARMY; and on the Discharge of Soldiers from the Service on Surgeon's Certificate: Adapted to the Service of the United States. By Thomas Henderson, M.D., Assistant Surgeon U. S. Army, &c., &c.

MEDICAL NOTES AND REFLECTIONS. By Henry Holland, M.D.; F.R.S., Fellow of the Royal College of Physicians, and Physician Extraordinary to the Queen.

THE MEDICAL PROPERTIES of the NATURAL ORDER RANUNCULACEÆ, &c., &c. By A. Turnbull, M.D.

Prof. HORNER'S NECROLOGICAL NOTICE OF DR. P. S. PHYSICK; Delivered before the American Philosophical Society, May 4, 1838.

THE LIFE OF JOHN HUNTER, F.R.S. By Drewry Ottley. 1 small vol. 8vo.

"In the summing up of Mr. Hunter's character, Mr. Ottley exhibits equal judgment and candour."—*Brit. & For. Med. Rev.*

ESSAY UPON THE QUESTION, IS MEDICAL SCIENCE FAVORABLE TO SCEPTICISM? By James W. Dale, M.D., of Newcastle, Delaware. Pamphlet.

METEOROLOGICAL REGISTER for the years 1826–30; from Observations made by Surgeons of the Army and others at the Military Posts of the United States. Prepared under the direction of Thomas Lawson, M.D., Surgeon-General U.S.A.

In Press,

EVANSON & MAUNSELL.

A PRACTICAL TREATISE ON THE MANAGEMENT AND DISEASES OF CHILDREN. By Richard T. Evanson, M.D., Professor of Medicine, — and Henry Maunsell, M.D., Professor of Midwifery in the Col. of Surgs. in Ireland. From the 4th Dublin edition. Edited by D. F. Condie, M.D.

"The authors of the work before us, have had the advantage of investigating the subject of Infantile Diseases, conjointly in a public institution—an advantage which no private medical man, however extensive his practice, could probably have. The observations being made conjointly too, offer a greater guarantee of correctness and authenticity, than if they emanated from a single source, however respectable. From their acquaintance, also, with foreign works, they have been able to bring up the Anatomy, Physiology, Pathology, and even Therapeutics, to a far higher level than is to be found in any previous work in the English language.

"The second chapter embraces the Management and Physical Education of Children. This chapter ought to be printed in gold letters, and hung up in the nursery of every family. It would save many lives, and prevent much suffering."—*Medico-Chirurg. Rev.*

"We know of no work to which, on the whole, so little can be objected in matter or manner. It is an elegant and practical compendium of Infantile Diseases; a safe guide in the Management of Children; and completely fulfils the purposes proposed."—*British Annals of Medicine*, No. VIII.

B. & H. continue to publish

THE SELECT MEDICAL LIBRARY

AND BULLETIN OF MEDICAL SCIENCE.

EDITED BY JOHN BELL, M.D.,

AT FIVE DOLLARS PER ANNUM, IN ADVANCE.

LIST OF WORKS

SUPPLIED AS

SELECT MEDICAL LIBRARY

Extras,—by Mail.

SUBSCRIBERS to the *Library* and *Bulletin*, and the *Medical Faculty in general*, are respectfully informed that the Publishers will furnish the following Works as *Extras*; for which purpose they are stitched in thick paper covers, with strong elastic backs, similar to the *regular* numbers; they can be sent by mail at the Periodical charge for Postage, which is per sheet, if under 100 miles, 1½ cents, exceeding that distance, 2½ cents.

To the name of each work is stated its number of sheets and the selling price; so that any gentleman desirous of having one or more *Extras* will, by remitting a note, (or order payable in Philadelphia,) be furnished, by return of mail, with whatever he may select, to the amount.

In order to encourage literature and the sciences generally, the Post Office regulations on Periodicals are such that remittances can be made with little or no expense to Subscribers or Publishers,—the Postmaster enjoying the *privilege* of *franking* all such letters; which, we are pleased to state, their courtesy has generally led them to exercise, and for which they will please accept our thanks.

BARRINGTON & HASWELL.

N.B. Those works comprised within brackets are bound in one volume, and must be ordered as one Extra.

LEE'S OBSERVATIONS on the PRINCIPAL MEDICAL INSTITUTIONS and PRACTICE of FRANCE, ITALY, and GERMANY, &c., with an Appendix on ANIMAL MAGNETISM and HOMŒOPATHY.
JOHNSTONE'S SYLLABUS of MATERIA MEDICA.
LATHAM'S LECTURES ON CLINICAL MEDICINE.
14 sheets. $1 35

A TREATISE ON TETANUS, by Thomas B. Curling.
BOUILLAUD ON ACUTE ARTICULAR RHEUMATISM in general. *Translated from the French,* by James Kitchen, M.D.
8 sheets. 0 80

PRACTICAL OBSERVATIONS on DISEASES of the HEART, LUNGS, STOMACH, LIVER, &c. By John Marshall, M.D., &c.
WEATHERHEAD on DISEASES of the LUNGS; considered especially in relation to the particular Tissue affected, illustrating the different kinds of Cough.
8 sheets. $0 80

PRICHARD on INSANITY and other DISEASES affecting the MIND. 14 sheets. 1 25

DAVIDSON and HUDSON'S ESSAYS on the SOURCES and MODE OF ACTION OF FEVER. 8 sheets. 80

MACROBIN'S INTRODUCTION to the STUDY of PRACTICAL MEDICINE, being an outline of the Leading Facts and Principles of the Science. 6 sheets. 70

SIR JAMES CLARK on the SANATIVE INFLUENCE of CLIMATE. 8 sheets. 80

CHANGES of the BLOOD in DISEASE. Translated from the French of M. Gibert, by John H. Dix, M.D., M.M.S.S. 3 sheets. . 50

HOCKEN on AMAUROSIS and AMAUROTIC AFFECTIONS. 8 sheets. 80

SIR CHARLES BELL'S INSTITUTES OF SURGERY. Arranged in the order of the Lectures delivered in the University of Edinburgh. 19 sheets. $1 50

EPIDEMICS of the MIDDLE AGES, viz. *The Black Death* and *Dancing Mania;* translated from the German of Hecker, by Dr. Babington, F.R.S. 7 sheets. 0 60

The ECLECTIC JOURNAL of MEDICINE, by John Bell, M.D., from November, 1836, to October, 1837. 19 sheets. . . . 2 00

PLUMBE on DISEASES of the SKIN; with splendid *coloured Engravings.* 17 sheets. 2 25

TURNBULL'S TREATISE on the MEDICAL PROPERTIES of the Natural order RANUNCULACEÆ, &c. &c.
THE GUMS; their *Structure, Diseases, Sympathies,* &c. By George Waite.
An ESSAY on DEW, &c. By W. C. Wells, F.R.S. } 9 sheets. 0 85

COLLINS'S PRACTICAL TREATISE on MIDWIFERY. 11 sheets. . 1 25

EVANSON and MAUNSELL on the MANAGEMENT and DISEASES of CHILDREN. A new edition in press, shortly to be published.

EDWARDS on the INFLUENCE of PHYSICAL AGENTS on LIFE: with observations on ELECTRICITY, &c. 10 sheets. . . . 1 00

HORNER'S NECROLOGICAL NOTICE OF DR. P. S. PHYSICK.
IS MEDICAL SCIENCE FAVOURABLE TO SCEPTICISM? By Dr. Dale, of Newcastle, Delaware.
ON DENGUE; its HISTORY, PATHOLOGY, and TREATMENT. By Prof. Dickson of S. C. } 3 sheets. 0 30

THE FOLLOWING ESSAYS ON PHYSIOLOGY AND HYGIENE:—
Reid's Experimental Investigation into the Functions of the Eighth Pair of Nerves.
Ehrenberg's Microscopical Observations on the Brain and Nerves; with *numerous Engravings.*
On the Combination of Motor and Sensitive Nervous Activity; by Prof. Stromeyer, Hanover.
Vegetable Physiology.
Experiments on the Brain, Spinal Marrow, and Nerves. By Prof. Mayer, of Bonn; with *wood cuts.*
Public Hygiene.
Progress of the Anatomy and Physiology of the Nervous System, during 1836. By Pro. Muller.
Vital Statistics.
REID on the FUNCTIONS of the EIGHTH PAIR of NERVES. } 13 sheets. 1 25

FRECKLETON'S OUTLINES of GENERAL PATHOLOGY. 7 sheets. . 0 75

URINARY DISEASES, and their TREATMENT. By R. Willis, M.D., &c. 10 sheets. 1 00

MILLINGEN'S CURIOSITIES of MEDICAL EXPERIENCE. 15 sheets. 1 50

ANDRAL'S MEDICAL CLINIC: *Diseases of the Encephalon, Spinal Cord,* &c. &c. 13 sheets. 1 20

The ECLECTIC JOURNAL of MEDICINE, by John Bell, M.D., &c., from November 1837, to October, 1838. 21 sheets. $2 00

LECTURES on the PHYSIOLOGY and DISEASES of the CHEST. By Prof. Williams. *With Engravings.* 15 sheets. 1 75

LECTURES on BLOOD-LETTING. By Dr. Clutterbuck. 5 sheets. . 0 65

MEDICAL and TOPOGRAPHICAL OBSERVATIONS upon the MEDITERRANEAN, and upon PORTUGAL, SPAIN, and other countries. By G. R. B. Horner, Surgeon U. S. N., &c. *Illustrated with Engravings.* 9 sheets. 1 00

MAGENDIE'S LECTURES on the BLOOD: *its Changes during Disease,* &c. 12 sheets. 1 25

The ECLECTIC JOURNAL of MEDICINE, by John Bell, M.D., &c., from November, 1838, to October, 1839. 20 sheets. . . . 2 00

HOLLAND'S MEDICAL NOTES and REFLECTIONS. 16 sheets. . 1 60

ARMY METEOROLOGICAL REGISTER for the YEARS 1826, 1827, 1828, 1829, and 1830.
HINTS on the MEDICAL EXAMINATION of RECRUITS for the ARMY; and on the Discharge of Soldiers from the Service on Surgeon's Certificate: Adapted to the Service of the United States. By Thomas Henderson, M.D., Assistant Surgeon U. S. Army, &c., &c. } 6 sheets. 0 65

MACARTNEY on INFLAMMATION. 5 sheets. . . . 0 50

BURNE on HABITUAL CONSTIPATION—its Causes and Consequences. 7 sheets. 0 75

A PRACTICAL TREATISE on VENEREAL DISORDERS, &c. By P. Ricord of the Venereal Hospital, Paris.
AMUSSAT'S LECTURES on the RETENTION of URINE, CAUSED by STRICTURES of the URETHRA, and on the Diseases of the Prostate. *Translated from the French* by James P. Jervey, M.D. } 7 sheets. 0 75

ESQUIROL on MENTAL DISEASES.
AN ESSAY ON HYSTERIA. *With numerous Illustrative and Curious Cases.* By Thomas Laycock. } 10 sheets. 1 00

CLINICAL REMARKS on some Cases of LIVER ABSCESS presenting externally. By John G. Malcolmson, M.D., Surgeon Hon. E. I. C. Service, &c.
THOMSON'S NOTICES of INFLAMMATORY AFFECTIONS of the INTERNAL ORGANS after EXTERNAL INJURIES and SURGICAL OPERATIONS. } 4 sheets. 0 45

The ECLECTIC JOURNAL of MEDICINE, by John Bell, M.D., &c., from November, 1839, to October, 1840. 20 sheets. . . . 2 00

GOOCH'S PRACTICAL COMPENDIUM of MIDWIFERY. 14 sheets. . 1 00

GRAVES'S CLINICAL LECTURES. *With Notes and Fifteen additional Lectures,* by W. W. Gerhard, M.D., Lecturer on Clinical Medicine to the University of Pennsylvania, etc. 23 sheets. 2 50

ELEMENTS OF SURGERY, IN THREE PARTS. By ROBERT LISTON, Fellow of the Royal College of Surgeons in London and Edinburgh, &c. Third American, from the Second London Edition, with upwards of one hundred and sixty illustrative engravings. Edited by SAMUEL D. GROSS, M.D., Professor of Surgery, Louisville Medical Institute. Author of Elements of Pathological Anatomy, etc., etc. 1 vol. 8vo. — 27 sheets. — 3 25

THE HISTORY, PATHOLOGY, AND TREATMENT OF PUERPERAL FEVER AND CRURAL PHLEBITIS. By Drs. GORDON, HEY, ARMSTRONG, and LEE; with an INTRODUCTORY ESSAY by CHARLES D. MEIGS, M.D., Professor of Obstetrics and the Diseases of Women and Children in the Jefferson Medical College, Philadelphia. 1 vol. 8vo. — 14 sheets. — $1 60

DERANGEMENTS, PRIMARY AND REFLEX, OF THE ORGANS OF DIGESTION. By ROBERT DICK, M.D., author of "A Treatise on Diet and Regimen." 1 vol. 8vo. 10 sheets. — 1 40

DISEASES OF THE LIVER AND BILIARY PASSAGES, by WILLIAM THOMSON, one of the Physicians of the Royal Infirmary of Edinburgh; and CLINICAL ILLUSTRATIONS OF THE LIVER AND SPLEEN, by WILLIAM TWINING; Surgeon of General Hospital of Calcutta, &c., &c., 1 vol. 8vo. — 14 sheets. — 1 60

A TREATISE ON THE DISEASES OF CHILDREN, WITH DIRECTIONS FOR THE MANAGEMENT OF INFANTS; by the late MICHAEL UNDERWOOD, M.D. From the ninth English edition, with notes by S. MERRIMAN, M.D., and MARSHALL HALL, M.D., F.R.S., &c., with notes by JOHN BELL, M.D., &c. — 16 sheets. — 1 75

LECTURES ON THE FUNCTIONS AND DISEASES OF THE WOMB; by CHARLES WALLER, M.D., Bartholomew's Hospital.
ON DISEASES OF THE UTERUS AND ITS APPENDAGES; by M. LISFRANC, La Pitie Hospital.
ON DISEASES OF THE PUERPERAL STATE; by J. T. INGLEBY Edinburgh, 1 vol. 8vo. — 10 sheets. — 1 10

APHORISMS ON THE TREATMENT AND MANAGEMENT OF THE INSANE; by J. G. MILLINGEN, M.D. 1 vol. 8vo. 4 sheets. — 0 38

A PRACTICAL DICTIONARY OF MATERIA MEDICA, Including the Composition, Preparation and Uses of Medicine; and a large number of Extemporaneous Formulæ: together with important Toxicological Observations; on the Basis of Brande's Dictionary of Materia Medica and Practical Pharmacy: by JOHN BELL, M.D., Lecturer on Materia Medica and Therapeutics, &c.&c. 1 vol. 8vo. — 20 sheets. — 2 25

OUTLINES OF PATHOLOGICAL SEMEIOLOGY. Translated from the German of PROFESSOR SCHILL. With copious notes by D. SPILLMAN, M.D., A.M., &c., &c. 1 vol. 8vo. 9 sheets. — 1 00

ARETÆUS ON THE CAUSES AND SIGNS OF ACUTE AND CHRONIC DISEASE. From the Greek, by T. F. REYNOLDS, M.B., F.L.S., &c., &c. 1 vol. 8vo. 4 sheets. — 50

LECTURES ON THE MORBID ANATOMY, NATURE, AND TREATMENT OF ACUTE AND CHRONIC DISEASES. By the late JOHN ARMSTRONG, M.D., Author of "Practical Illustrations of Typhous and Scarlet Fever," &c. Edited by JOSEPH RIX, Member of the Royal College of Surgeons. 1 vol. 8vo. — 29 sheets. — 2 75

BLUNDELL'S LECTURES ON THE PRINCIPLES AND PRACTICE OF MIDWIFERY. Edited by CHARLES SEVERN. 1 vol. 8vo. 19 sheets. — 1 50